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COSTA RICA: MISMANAGEMENT OF THE COFFEE BOOM

by

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Abstract

This paper examines the macroeconomic consequences of the 1976-80 coffee boom in Costa Rica. It first describes the nature and measures the extent of this positive, temporary trade shock, associated both with coffee price increases and a major improvement of the country's international terms of trade. It next explores the consequences of the resulting windfall on the components of aggregate demand and supply, on asset accumulation, on employment, and on relative commodity prices. Finally, it evaluates macroeconomic policy management during the boom and the extent to which inappropriate policy decisions contributed to the fiscal and financial crisis of the early 1980s. It also attempts to identify the impact of both the trade shock and the policy responses on the country's long-term prospects for economic growth.

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COSTA RICA: MISMANAGEMENT OF THE COFFEE BOOM[1]

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I. Introduction

Costa Rica is a small, very open economy. With a total population of 2.6 million people, a per capita GDP of CR$ 77,250 (about US$ 1,540), and a total GDP of CR$ 198 billion (about US$ 3,950 million), by 1985 the country's domestic market was still comparatively insignificant. Given a narrow resource base and a limiting domestic market, Costa Rica has always perceived that trade with other countries must act as the economy's engine of growth. Indeed, much of the impulse for growth during this century has been provided by the export of agricultural commodities. The development for export of coffee, bananas, cacao, sugar, and beef raised the levels of domestic output and income, increased the country's capacity to import, and yielded the dynamic benefits from specialization and competition.

The result has been a very open economy. During the past three decades, exports have represented between one-fifth and over two-fifths of the GDP, while imports have amounted from one-quarter to almost one-half of the GDP. The importance of imports in-

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creased to a peak of 48 percent in 1974, during the first oil shock. Costa Rica has exported mainly primary products, particularly coffee and bananas. About two-thirds of the agricultural output have been exported, while these exports have generated about two-thirds of the country's export earnings.

Trade played an important role in the development of the manufacturing sector, as well. Costa Rica joined the Central American Common Market (CACM) and adopted a strategy of regional import substitution in 1963. Manufactured goods, which represented only 4 percent of exports at that time, grew to 29 percent of the total in 1979, just before the breakdown of the CACM. About four-fifths of these exports went, however, to the protected markets in the partner countries in the regional customs union. In addition, a high reliance on foreign savings explained a good portion of the relatively high rates of capital accumulation and the corresponding high rates of output growth experienced through the 1970s, despite a comparatively poor performance of domestic savings. After the economic crisis of the early 1980s, and in response to changes in the commercial policy regime, exports of new non-traditional exports (pineapples and other tropical fruits, flowers and ornamentals, winter vegetables) have been the most dynamic sector of the Costa Rican economy.

Macroeconomic events in this small, very open economy have been dominated, therefore, by the evolution of its international economic relations: the demand for and the prices paid in foreign markets for its main export crops, the opportunities provided and the constraints imposed by its participation in the Central American Common Market, and its

degree of access to savings from abroad, in order to finance high rates of both consumption and domestic investment.[3]

Prior to the mid-1970s, macroeconomic instability in Costa Rica had been a function, primarily, of fluctuations in the international prices of its two main exports: coffee and bananas, and of variations in the level of production of these two crops, in response to natural events and, more recently, due to labor unrest in the banana plantations. The country enjoyed, on the other hand, increasingly ample access to foreign savings, both to finance its brisk long-term growth and to facilitate the required balance-of-payments adjustments, when prices or yields became temporarily low, without an excessive reduction in employment and consumption. A comparatively small size of its public sector and the pursuit of cautious fiscal and monetary policies, under the leadership of a strong and independent Central Bank, had resulted in remarkable price and exchange rate stability, despite the country's inevitable vulnerability to external shocks.

After 1973, however, Costa Rica experienced several major external shocks, namely, the two international oil crises[4], the 1976 coffee boom, soon followed by a world recession, the breakdown of trade within the Central American Common Market, war, insurrection, and political turmoil in Central America, and sharp changes in its degree of access to international financial markets. This sequence of sizable external shocks, which took place

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[3] See Claudio Gonzalez-Vega, Costa Rica: Macroeconomic Policies, Crises, and Long-Term Growth, monograph prepared for the World Bank Project on Macroeconomic Policies, Crises, and Long-Term Growth, 1989.

[4] The first oil shock required the first adjustment originated on the import, rather than the export side of the balance of payments, since World War II.

in a relatively short period of time, sharply increased the instability of the economy and magnified its problems of adjustment, while the comparatively successful tools for macroeconomic management that the authorities had developed over the years were no longer appropriate to deal with the new situation.

The structural rigidities that had resulted from the protectionist strategy of development adopted in the late 1950s had created, in the meantime, an economic environment less conducive than in the past to a rapid and smooth adjustment. Contrary to its declared objective, import substitution had not reduced the country's dependence on its traditional agricultural exports, whose growth had facilitated, through the mid-1970s, the expansion of protected trade within the CACM. The cascading pattern of nominal protection, with high tariff rates on imports of final consumer goods, and low duties on imports of intermediate and capital goods, had fostered an import-intensive manufacturing sector and had imparted a strong anti-export bias to its development. Since the reductions of imports required after negative external shocks implied a diminished availability of inputs for production, the powerful manufacturing sector was able to block attempted adjustments, forcing an excessive increase in foreign borrowing.

Powerful public sector labor unions prevented, in turn, the required reductions in government expenditures. These and similar political economy forces increasingly reduced the degrees of freedom of the authorities and explained, in part, the adoption of incomplete, inconsistent measures which magnified, rather than minimized, both the degree of macroeconomic instability and the extent of the adjustments required. These events led, in the early 1980s, to *the crisis*, a blown-up version of similar episodes of recurrent macroeconomic

difficulties, which intermittently resulted from the economy's vulnerability to changes in external market conditions, but which so far had been, in comparison, more easily manageable.[5]

The 1974 oil crisis brought about a first major challenge of adjustment for the Costa Rican economy. This trade shock was faced by the authorities in the traditional way, with a rapid expansion of both domestic credit and foreign borrowing, in order to avoid too much of a reduction in aggregate expenditures. The magnitude of the required credit flows was much greater, however, than in earlier occasions, and a large increase in the country's external debt was not sufficient to prevent Costa Rica's first inflationary experience since the late 1940s.

Domestic inflation was short-lived, however, because soon the coffee boom made it possible, once more, to divert excessive aggregate demand towards the balance of payments. When at the end of the coffee boom, once again the authorities attempted to smooth the process of adjustment by increasing foreign borrowing and expanding domestic credit, this time they were not successful. Two key issues from the experience of this period are, therefore, the importance of an adequate macroeconomic management during a boom, and the explanation of why Costa Rica failed in the implementation, during the early 1980s, of an adjustment strategy that had worked reasonably well in the past. While this paper

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[5] Claudio Gonzalez-Vega, "Fear of Adjusting: The Social Costs of Economic Policies in Costa Rica in the 1970s," in Donald E. Schulz and Douglas H. Graham, eds., Revolution and Counterrevolution in Central America and the Caribbean, Boulder: Westview Press, 1984.

focuses mostly on the first question, its findings shed some light on the second issue, as well.[6]

The extent to which reliance on a few agricultural commodities for the generation of export earnings exposes an economy to the risk of market shocks has been amply discussed in the literature and in international forums. The available evidence suggests that world commodity markets have become more unstable and, possibly, more unpredictable since 1973, increasing risks, as indicated here for Costa Rica. This requires an improvement, not only of macroeconomic policies, but of risk management techniques in the economy, as well.[7]

In order to deal with these temporary trade shocks, after 1973 Costa Rica heavily borrowed abroad. This strategy involved substantial risks in itself, too. An unexpected deterioration in the country's terms of trade, as was the case towards the end of the decade, can quickly erode a country's ability to service a large external debt, with major macroeconomic consequences.[8] The resulting restricted access to new foreign loans has not only

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[6] For a discussion of some of these issues, see Claudio Gonzalez-Vega, "Debt, Stabilization, and Liberalization in Costa Rica: Political Economy Responses to a Fiscal Crisis," in Philip L. Brock, Michael B. Connolly, and Claudio Gonzalez-Vega, eds. Latin American Debt and Adjustment: External Shocks and Macroeconomic Policies, New York: Praeger, 1989, pp. 197-209.

[7] See Peter B. R. Hazell, "Risk, Market Failure and Agricultural Policy," paper presented at the S-180 conference on "An Economic Analysis of Risk Management Strategies for Agricultural Production Firms," Savannah, Georgia, March, 1988. In addition to the macroeconomic impacts, emphasized in the present paper, one has to be concerned with the microeconomic impacts on producers' incomes, risks, and investment and resource allocation decisions.

[8] See Robert J. Myers and Stanley R. Thompson, "Optimal Portfolios of External Debt in Developing Countries: The Potential Role of Commodity-Linked Bonds," American Journal of Agricultural Economics, Vol. 71, No. 2, May, 1989, pp. 517-522.

imposed major adjustments on the Costa Rican economy and curtailed its growth opportunities, but it has also rendered a strategy of relying on foreign borrowing in the face of future negative trade shocks unfeasible. This has made the Costa Rican economy extremely more vulnerable.

An analysis of Costa Rica's macroeconomic history in the second half of the 1970s presents major difficulties, in view of this multiplicity of exogenous shocks and of their overlapping (sometimes reinforcing, sometimes contradictory) consequences. Furthermore, any attempt to isolate the impact of the coffee boom from this complex sequence of events (the main purpose of this paper) has to rely on many heroic assumptions. Therefore, while the paper contains numerous computations, counterfactuals, and simulations, these are not expected to represent accurate measurements of actual impacts, but rather be merely indicative of the direction of the influences of the coffee boom and of their approximate order of magnitude. Moreover, although the period is frequently described as the *coffee boom*, the prosperity that this expression refers to, and its consequences, go much beyond events in the coffee sector.

The paper thus presents a preliminary exploration of a few basic questions. Did the coffee boom of 1976 contribute to the long-term growth of the Costa Rican economy? How were various sectors of the Costa Rican society affected by the boom? Did macroeconomic management (or mismanagement) of the boom made the crisis of the early 1980s even worse? What lessons can be learned from this experience, exceptional in its magnitude, but not alien to Costa Rica's past and future economic history? The paper attempts to provide provisional answers to some of these questions. It first describes the nature and extent of

the shock and measures the resulting windfall. After the construction of counterfactuals, it explores impacts on the components of aggregate demand and supply, on asset accumulation, on employment, and on relative commodity prices. It analyzes the consequences of the policy decisions of the authorities and concludes with an interpretation of the lessons learned about acroeconomic management during a temporary trade shock.

II. The Nature and Extent of the Shock

2.1 The Coffee Boom

On June 18, 1975 frost severely damaged about one-half of Brazil's 1976-77 coffee harvest. In addition, rain reduced the Colombian coffee crop by 20 percent and civil war disrupted Angola's production. This sharp reduction in the world's coffee supply dramatically increased prices, from their comparatively low 1975 levels (about US$ 50 per 46 Kg. bag) to record levels (US$ 336 on April 15, 1977 for the softs typically sold by Costa Rica). Although these high prices both discouraged consumption and stimulated production all over the world, with the accompanying price reductions, coffee remained unusually expensive for several years, partly in response to the producing countries' efforts to limit supply. On May 19, 1979 there was a new, although less severe, frost in Brazil, which further contributed to the high prices of the period.

The annual average prices received by Costa Rican exporters during the second half of the decade are shown in Table 1. By 1977, these prices reached 3.8 times their 1975 level and, although prices declined afterwards, by 1980 they still were 2.7 times that level. Even after taking into account the acceleration of international inflation, by 1980 a bag of coffee

could still buy twice as many imports as in 1975, when the price had been comparatively low. In effect, in 1975 the relative price of Costa Rican coffee has been at its lowest level since 1950 and, for that reason, it was expected to rise (to about 1.5 times that level) even before news of the frost arrived. Had the price of coffee remained at US$ 58, over five years one bag would have generated US$ 290. The actual 1976-1980 earnings from a bag of coffee, on the other hand, amounted to 2.8 times that level (US$ 802) and generated excess earnings (a windfall) of US$ 512 per bag over those five years.[9]

Table 1
Costa Rica: Nominal and Real Coffee Prices, 1975-81

	1975	1976	1977	1978	1979	1980	1981
Price [a/]	58	110	217	167	149	159	115
Price index	100	190	375	288	257	274	198
rate of change[b/]	-9	90	97	-23	-11	7	-28
Real price[c/]	58	116	217	158	123	115	78
Real price index	100	200	374	272	212	199	134
rate of change[b/]	43	100	87	-27	-22	-6	-32

[a/] Price per 46 Kg. bags in US dollars; annual average.
[b/] Percentages.
[c/] Prices in US dollars deflated by Costa Rica's import price index (1975:100)
Source: Banco Central de Costa Rica, Estadisticas 1950-1985, 1986.

[9] Since some increase in prices was actually expected, not all of these excess earnings are a true windfall. If the expected price would have been US$ 65, the corresponding windfall would have been US$ 477 (about 60 percent of earnings), while with an expected price of US$ 90, the windfall would have been US$ 352 (about 45 percent of actual earnings). On the other hand, in real terms, deflated by the import price index, actual earnings amounted to 2.5 times the earnings of the period at constant coffee prices.

Costa Rica's coffee export earnings did not grow, in the beginning, as rapidly as international prices did, because of a substantially reduced *quantum* exported in 1976 and 1977 (Table 2).[10] This has been attributed to low levels of fertilization and other chemical inputs, in resonse to the low 1975 prices. Similarly, the new high prices stimulated a strong supply response (most of it with the inevitable two-year lag) for 1978 and 1979. While there was only a slight increase in the area planted, in view of policies to restrict supply, there were major yield improvements, as a result of the better agronomical practices induced by the boom. By 1979, yields were 23 percent higher than in 1975.

Table 2
Costa Rica: Volume and Value of Coffee Exports, Area Planted, and Yields.
1975-1980

	1975	1976	1977	1978	1979	1980	1981
Exports Value[a/]	97	154	319	314	316	248	240
rate of growth[b/]	-23	59	107	-2	1	-22	-3
Exports volume[c/]	77	64	68	85	97	72	69
rate of growth[b/]	-15	-17	6	25	14	-26	-4
Area planted[d/]	84.6	85.2	85.8	86.4	87.0	87.6	88.1
Yields[e/]	43	40	39	47	53	45	55
rate of change[b/]	-19	-7	-2	21	13	-15	22

[a/] Millions of current US dollars.
[b/] Percentages.
[c/] Millions of kilos.
[d/] Thousands of hectares.
[e/] Double hecto-liters per hectare.
Sources: Banco Central de Costa Rica, Estadisticas 1950-1985, 1986; Oficina del Café; and United Stated Department of Agriculture, "World Coffee Situation," August, 1989.

[10] The exportable volume had rapidly grown from 69 million kilos in 1970 to 90 million kilos in 1974, a level that was not reached again until 1979. In 1974 coffee exports amounted to US$ 125 million.

The smaller volume exported during the early years of the boom did not allow Costa Rica to take as much advantage of the high prices as would have been the case with a more typical crop. Increased production later on made it possible, on the other hand, to sustain the level of export earnings, despite the reduction in prices. The higher price obtained towards the end of the decade, furthermore, compensated for the new reduction in volume, in response to declining prices.[11] This contributed to sustain a boom atmosphere, even after coffee prices had begun to drop.

Table 3
Costa Rica: Index of the Value, Volume, and Price of Coffee Exports.
1975-1981

	1975	1976	1977	1978	1979	1980	1981
Export value index	100	159	330	324	326	256	248
rate of change[a/]	-22	59	108	-2	1	-21	-3
Export volume index	100	84	88	112	127	93	126
rate of change[a/]	-15	-16	5	27	13	-27	34
Export price index	100	190	375	288	257	274	198
rate of change[a/]	-9	90	97	-23	-11	7	-28

[a/] Percentages.
Source: Computed from Table 1 and 2.

Counterfactual coffee exports were estimated in order to measure the amount of the windfall generated by the coffee boom, under two basic assumptions:

[11] The *quantum* exported showed much less variability than both prices and revenues, while *quantum* and prices showed a positive, but very small correlation during each year. The variance of the logarithms was 0.212 for prices, 0.239 for value, and 0.023 for *quantum*, while the covariance of price and quantum was 0.004, for 1975-80.

(a) the counterfactual volume of coffee exports would have been the same as the actual volume observed, and

(b) all of the coffee price increases above the 1975 level represented a windfall.

These assumptions had opposite consequences on the estimation of the windfall. On the one hand, the actually observed volumes included a vigorous boom-induced supply response. Although not all of the increased production represented a windfall, since the extra output had an opportunity cost, in the absence of the price increases the exportable volume would have been less than observed. For this reason, the windfall was underestimated by this procedure.[12] On the other hand, to the extent to which there were expectations that prices would rise, from their unusually low 1975 levels, the observed price increases in part represented a return to the trend and in part a true windfall. From this perspective, the second assumption leads to an overestimation of the *unexpected* windfall. The price changes were so sharp, in any case, that there is no doubt that a major windfall was earned.

Over the five-year period (1976-1980), the total accumulated windfall amounted to US$ 862 million, as shown in Table 4 and in Figure 2. This was equivalent to the substantial capital inflows of the previous decade. Indeed, between 1966 and 1975, the accumulation of the capital account balances had added up to US$ 867 million. Moreover, the windfall was equivalent to more than one-and-a-half times the total outstanding balance (US$ 520 million) of Costa Rica's public external debt by 1975.

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[12] This procedure was adopted, in addition, to make the results comparable to those obtained for Kenya by David Bevan, Paul Collier, and Jan W. Gunning, in Controlled Open Economies. A Neoclassical Approach to Structuralism. Oxford: Clarendon Press, 1990, p. 143.

The acceleration of import prices towards the end of the 1970s (second oil shock) eroded, on the other hand, the real value of this coffee exports windfall, down to a total accumulated value of US$ 777 million at constant 1975 import prices. While this erosion was important only in 1979 and 1980, the behavior of the windfall, in real terms, reflected the opposite impact of still relatively high coffee prices and the new acceleration of import prices, which began to modify the prevailing structure of expectations. Furthermore, substantial access to international debt flows made it possible to sustain, in the face of a declining real value of the windfall, both the boom atmostphere and the level of aggregate expenditures.

Table 4
Costa Rica: Coffee Exports Windfall. 1975-1981

	1975	1976	1977	1978	1979	1980	1981
Coffee Exports[a/]	97	154	319	314	315	248	240
rate of growth[b/]	-23	59	107	-2	1	-21	-3
Counterfactual Coffee Exports[a/]	97	81	85	109	123	90	121
rate of growth[b/]	-	-16	5	27	13	-27	34
Windfall[a/]	0	73	234	205	193	158	119
Real windfall[c/]	0	77	234	193	159	114	81
Windfall as a proportion (%) of:							
Coffee exports	0	47	73	65	61	64	49
Total exports	0	12	28	24	21	16	12
GDP	0	3.0	7.6	5.8	4.8	3.6	3.6
Real windfall/real GDP[d/]	0	3.7	10.4	8.1	6.3	4.5	3.3

[a/] Millions of US dollars.
[b/] Percentages.
[c/] Windfall in US dollars deflated by the Costa Rican import price index (1975:100).
[d/] GDP in constant colones of 1975, windfall deflated by import price index.

The windfall represented a large proportion of total coffee exports: almost one-half in 1976, almost three-quarters in 1977, and almost two-thirds during the remaining years. It accounted, as well, for a large portion of each year's total exports of goods (28 percent in 1977) and of Gross Domestic Product (7.6 percent of GDP in 1977). At constant prices, the windfall was equivalent to over 10 percent of GDP in 1977, more than the annual rate of growth of output, and was similar to the relative importance of the Mexican oil boom.[13] As it had been the case throughout the country's history, coffee had a major impact on the Costa Rican economy still by the late 1970s.

Table 5
Costa Rica: Relative Importance of Coffee. 1975-1980

	1975	1976	1977	1978	1979	1980
Share (%) of coffee in:						
Exports	20	26	39	36	34	25
Gross Value of Agricultural Output:						
Nominal	14	21	33	27	22	23
Real[a/]	19	18	19	20	19	21
Value Added in Agriculture:						
Nominal	13	23	37	30	24	25
Real[a/]	20	20	20	22	22	23
Gross Domestic Product:						
Nominal	2.6	4.7	8.3	6.1	4.5	4.5
Real[b/]	2.6	2.4	2.3	2.5	2.4	2.5
Tax Revenues	6.3	8.7	14.0	12.0	11.9	9.9

[a/] At constant 1966 prices.
[b/] At constant 1975 prices.
Source: Banco Central de Costa Rica, Estadisticas 1950-1985, 1986.

[13] See Michael Gavin, "The Mexican Oil Boom: 1975-1986," paper presented at the Conference on Temporary Trade Shocks, University of Oxford, September, 1990.

The importance of coffee in total exports had declined from 55 percent in 1958, to 32 percent in 1970, and to the lowest observed value of 20 percent in 1975. Coffee's share of exports increased with the boom, as shown in Table 5, to over 39 percent in 1977, to a relative importance that it had not had since 1966. The share of coffee in the gross value of agricultural production more than doubled (to 33 percent in 1977), while its share in value added in the agricultural sector increased three times, to 37 percent at the peak of the boom. The relative importance of coffee in the generation of the GDP increased more than three times, from 2.6 percent in 1975 to 8.3 percent in 1977, when these shares are measured in nominal terms, since its relative importance in the absence of price changes hardly changed at all. Coffee taxes generated at least twice as large a share of Central Government tax revenues during the boom than during earlier periods.

2.2 The Terms-of-Trade Shock

Substantial as it was, the coffee boom was not the only macroeconomic event of the second half of the 1970s. The Costa Rican economy experienced several other exogenous, partially overlapping external shocks (including two oil crises, changes in the world markets for other major exports, a foreign debt boom, and civil war in Central America). All of these events simultaneously influenced expectations and decisions. A good indicator of these developments is the evolution of the country's international barter terms of trade, shown in Table 6 and in Figure 1.

Table 6
Costa Rica: Export and Import Prices and Barter Terms of Trade. 1972-1982
(Index 1975:100)

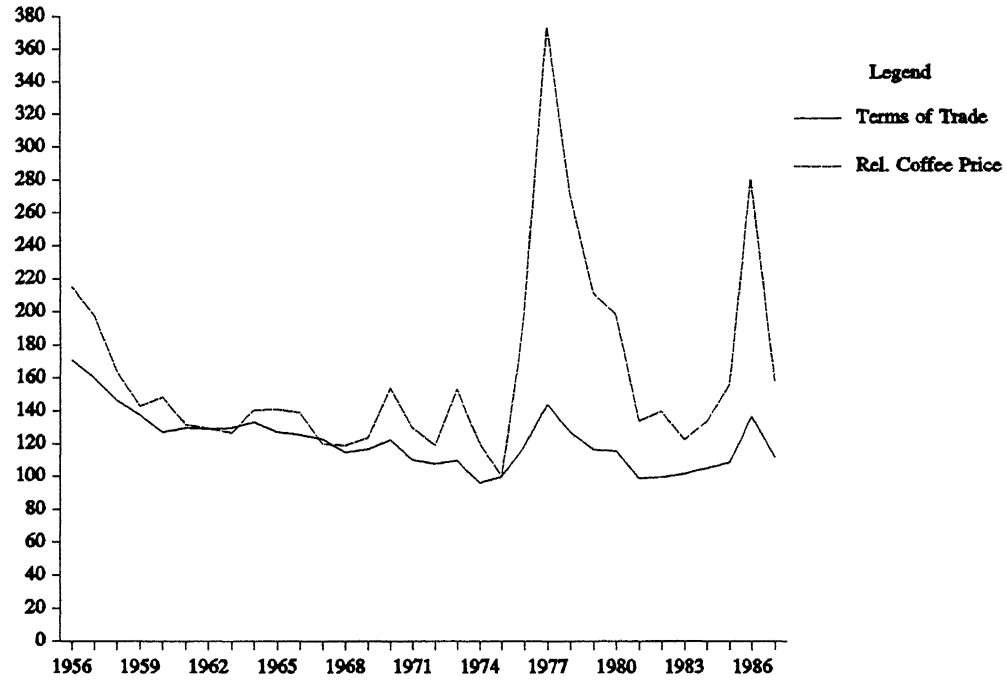
	Export Prices	Import Prices	Terms of Trade	Export Prices[a/]	Import Prices[b/]	Terms of Trade [a,b/]
1972	65	60	108			
1973	73	67	110			
1974	88	91	96			
1975	100	100	100	100	100	100
1976	113	95	119	97	95	102
1977	144	100	144	103	100	104
1978	135	106	127	110	106	104
1979	141	122	116	134	120	112
1980	159	138	116	144	134	107
1981	146	147	99			
1982	143	143	100			

[a/] Exports without coffee.
[b/] Imports without oil.
Source: Banco Central de Costa Rica, Estadisticas 1950-1985, 1986.

With the sharp increase in import (oil) prices in 1973 and 1974, Costa Rica's international terms of trade had deteriorated about 12 percent. This was followed by substantial improvements in 1975 through 1977, as a consequence of coffee and other export prices, and by a renewed deterioration afterwards, in view of declining coffee prices and new oil price increases. By 1977, the country's barter terms of trade were 44 percent above their 1975 level and, despite their reduction, in 1980 they were still 16 percent above that level. By 1981, they had returned, however, to their 1975 level.[14]

[14] That is, the downturn was essentially a return to the average terms of trade, rather than the observation of an unusually low level of this relative price. The question then is how to manage an *improvement* that is not expected to last.

Figure 1
Costa Rica: Barter Terms of Trade and Relative Coffee Prices.
1956-1987. (Index 1975:100).



The positive terms-of-trade shock lasted, therefore, from 1975 to 1981 (creating a well-defined five-year boom for 1976-1980). The boom was both preceded and followed (with a partial overlap) by major negative terms-of-trade shocks and it was, itself, the consequence of forces pulling in opposite directions. It was a period of prosperity, in any case, since during those five years, on the average export prices increased 1.39 times, while import prices increased only 1.12 times. It coincided, in addition, with major inflows of

foreign savings, that generated a parallel and complementary external debt boom. It is almost impossible to separate the consequences of these two booms.[15]

This positive terms-of-trade shock was exceptional. The peak value of the index (144) reached in 1977 had not been observed for 20 years, since 1958 at the end of the Korean War boom. On the other hand, the 1974 level of the terms-of-trade index, after the first oil shock, had been the lowest observed at least since 1950 and has not been observed again.[16] The levels for 1981 (99.0) and 1982 (99.6) have been the second and third lowest, respectively, for the past four decades. Costa Rica experienced, therefore, an unusually wide swing in its international terms of trade. As a consequence, the 1976-1980 boom may have loomed larger, by being *sandwiched* between two major negative shocks.[17]

As a result of the terms-of-trade shock, over this five-year period (1976-1980), a unit of Costa Rican exports commanded 1.24 times as much purchasing power, compared to a counterfactual situation with constant barter terms of trade. The accompanying increase in real incomes augmented domestic demand, particularly government activity, and increased both the country's creditworthiness in international capital markets and trade with the also

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[15] Moreover, to the extent to which the coffee boom increased Costa Rica's credit-worthiness, it most likely increased the volume of foreign lending to the country.

[16] Actually, the values observed in 1953-58 were by far the highest for the 1920-1990 period. Between 1920 and 1990, only two times (1954 and 1956) were the terms of trade higher than in 1977. See Victor Bulmer-Thomas, The Political Economy of Central America Since 1920, Cambridge: Cambridge University Press, 1987, p. 334.

[17] In this sense, the Costa Rican coffee boom differed from a typical commodity boom were peaks are sandwiched by shallow troughs (C. L. Gilbert, "Efficient Market Commodity Price Dynamics," Washington, D.C.: The World Bank, Country Policy Department Working Paper 1985:4).

booming Central American Common Market partners, important coffee growers as well, leading to additional indirect consequences from the boom.

Export values grew at an average annual rate of 15.2 percent between 1975 and 1980, as a result, not only of the rapid price increases, but also of a sustained growth in the exportable *quantum* (4.9 percent per year), as shown in Table 7. As a consequence, earnings from exports generated major real income increases for Costa Ricans and brought about a period of unusual prosperity.[18]

Table 7
Costa Rica: Index of the Value, Volume, and Price of Exports.
1975-1981

	1975	1976	1977	1978	1979	1980	1981
Export value index	100	120	168	175	189	203	204
rate of change	12	20	40	4	8	7	0
Export volume index	100	106	116	130	134	127	140
rate of change	-1	6	9	12	3	-5	9
Export price index	100	113	144	135	141	159	146
rate of change	14	13	27	-6	4	13	-8

Source: Banco Central de Costa Rica, Estadisticas 1950-1985, 1986.

Counterfactual total exports were estimated, in order to measure the amount of the windfall generated by the terms-of-trade shock, given the following assumptions:

(a) the counterfactual volume of exports would have been the same as the actual *quantum* observed, and

(b) the whole of the terms-of-trade changes with respect to their 1975 level represented a windfall.

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[18] Total non-coffee export values, including sales to the CACM, grew rapidly as well, at an average annual rate of 13.7 percent for 1976-80.

These assumptions somewhat bias the estimation of the windfall, since the observed export volumes included boom-induced supply responses, as well as exogenous changes in the international markets for other exports. The impact of the positive terms-of-trade shock was affected, on the other hand, by negative terms-of-trade shocks just before and after the period under consideration. The estimation of the windfall represents, therefore, the net combined impact of these developments. Coffee and oil dominated the changes, in any case. As shown in Table 6, the country's barter terms of trade, excluding coffee and oil, did not change much until 1979 and, even then, the changes were minor, compared to those observed in the case of the full terms-of-trade index. The resulting export windfdall is shown in Table 8 and in Figure 2.

Over the five-year period (1976-1980), the total accumulated exports windfall amounted to US$ 800 million. The acceleration of import prices towards the end of the 1970s eroded the real value of this windfall, down to a total accumulated value of US$ 733 at constant 1975 import prices.[19] The windfall represented a large proportion of total annual exports (almost one-third in 1977). It also accounted for a large portion of each year's GDP (8.3 percent in 1977, at current prices, and 11.3 percent of GDP at constant prices).

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[19] If National Income Accounts statistics, rather than Balance of Payments data are used, the corresponding figures are US$ 922 million for the windfall at current prices and US$ 843 million for the windfall at constant 1975 import prices. The discrepancy results from consideration of trade in both goods and services (including tourism) in the National Income Accounts statistics, but only trade in goods in the Balance of Payments data. The boom was mostly related to trade in goods. If oil is excluded from import prices, on the other hand, the corresponding windfall would be US$ 866 million (nominal) and US$ 734 million (real).

Table 8
Costa Rica: Terms-of-Trade Export Windfall. 1975-1981

	1975	1976	1977	1978	1979	1980	1981
Exports[a/]	493	593	828	865	934	1,002	1,008
rate of growth[b/]	12	20	40	4	8	7	1
Counterfactual Exports[a/]	493	498	574	680	804	867	1,018
rate of growth[b/]	-	1	15	18	18	8	17
Windfall[a/]	0	94	254	185	131	135	-10
Real windfall[c/]	0	99	254	175	107	98	-7
Windfall as a proportion (%) of:							
Coffee boom windfall	0	129	109	89	68	85	-
Total exports	0	16	31	21	14	13	-
GDP	0	3.9	8.3	5.3	3.2	3.1	-
Real windfall/real GDP	0	4.8	11.3	7.3	4.3	3.9	-

[a/] Millions of US dollars.
[b/] Percentages.
[c/] Windfall in millions of US dollars, deflated by the Costa Rican import price index (1975:100).

During 1976 and 1977, the total exports windfall was larger than the coffee windfall, while the opposite was true for the rest of the period. In effect, while coffee prices remained comparatively high through 1980, the barter terms of trade deteriorated towards the end of the decade. As a result, the accumulated windfall from total exports was 7.2 percent less than the accumulated windfall from coffee exports. Because it better captures the nature of the overall prosperity, the analysis of this paper will correspond to the terms-of-trade shock rather than to the coffee boom proper.[20]

[20] For simplicity, the term *coffee boom* will be used to describe the whole set of events of the period.

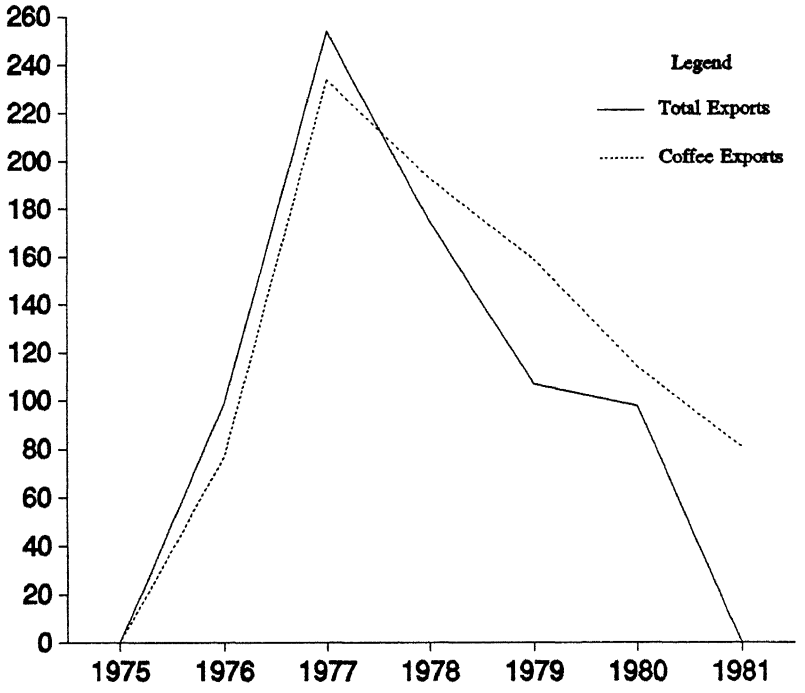
2.3 Nature of the Shock

The event under analysis was a positive terms-of-trade shock, that lasted for five years (1976-1980), associated mostly but not entirely with coffee prices. It resulted in a non-uniform annual windfall, which sharply increased in 1977, and declined in magnitude afterwards (See Figure 2). Given new negative shocks, other influences had become more important than coffee by 1980. In particular, debt service problems and new oil price increases dominated the macroeconomic events of the last part of the period. Most agents attributed the prosperity to coffee exports, and expectations were governed, particularly in the earlier years, by the evolution of the world coffee markets. The second oil shock changed this expectations structure, but the consequences were not fully felt until the turn of the decade.

Because it followed a severe negative shock (the first oil crisis and low coffee prices in 1975), part of the improvement was perceived as merely a return to a trend, as reflected by Costa Rica's very satisfactory output and export growth experience through the early 1970s. In this sense, the improvement was expected to be permanent. Increased access to international capital markets and a growing foreign debt further contributed to the perception that the boom was not as temporary as it really turned out to be. Indeed, when eventually the export windfall sharply declined, towards the end of the decade, real expenditures were sustained, financed with increasing debt flows, and this dulled pictures of an ending prosperity. Moreover, the change of administration in May, 1978 influenced the public sector's behavior with a boom bias. The incumbent (President Oduber) wanted to sustain a boom atmosphere, in order to promote the reelection of the ruling party, while the

victorious adversary (President Carazo) felt naively compelled to prove that he could deliver as much as the earlier administration had been able to do during the boom.

Figure 2
Costa Rica: Total Exports and Coffee Windfall. 1975-1981
(Millions of 1975 US$)



Source: Tables 4 and 8.

To the extent to which the 1975 coffee prices were viewed as exceptionally low and were expected to rise, expectations were inclusive.[21] Nobody had predicted, however, the actual large magnitude of the price increase and, to this extent, expectations were mostly exclusive. The largest price increases observed in the previous two decades (28 percent in 1970 and 43 percent in 1974) were small compared to the boom jumps. The day before the frost in Brazil, Costa Rican newspapers had reported that, during the earlier year, coffee consumption in the United States had declined 6 percent, while the world's coffee supply was expected to increase 35 percent.[22] Costa Rican coffee growers were mostly concerned, in view of these trends, with the negotiation of a new international agreement to restrict world supply.

Once the impact of the frost became known, increased earnings were expected at least for the following two years, after which a price-induced supply response was expected to lower prices again.[23] By August, the Costa Rican Coffee Institute was announcing a price of US$ 100 for the 1975-76 crop, while private producers expected as much as US$ 150.[24] The Minister of Agriculture emphasized that the price increases were entirely

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[21] Expectations are inclusive when the shock is consistent with previous expectations about permanent income; they are exclusive if the shock was not expected. This may or may not lead to a revision of expectations. See Bevan, Collier, and Gunning, Op.cit.

[22] La Nacion, June 18, 1975.

[23] The San Jose News, August 8, 1975.

[24] Excelsior, August 5, 1975 and The San Jose News, August 8, 1975. It was recognized that "Costa Rica will not be able to benefit as much from the new prices as it would like, since production has been off in recent years due to dropping prices."

temporary, in justifying his opposition to tax increases.[25] At the National Coffee Congress of February, 1976 little attention was devoted to the consequences of the frost in Brazil. Coffee growers merely requested that, in view of the high prices, the authorities promoted coffee production with technical assistance and credit, so that the country could acquire an entitlement to a larger quota under a new international agreement. The National Coffee Congress of 1977 explicitly recognized that the boom was temporary and emphasized the need for a new international agreement to face the consequences of increasing world supply.[26]

In summary, to the extent to which expectations were inclusive, they needed not to be revised. In addition, because the coffee shock was clearly perceived as exceptional and temporary, expectations were not revised either, except to the extent to which these events confirmed with a positive actual outcome, earlier held optimistic but still probabilistic expectations of income growth, and to the extent to which growth was expected to accelerate on the basis of boom investment.

Using a 10 percent discount rate, the present value of the 1976-1980 windfall was estimated to be CR$ 5,827 million (at current import prices) and CR$ 5,334 million (at constant 1975 import prices). Under this assumption, the present value of the real windfall was equivalent to 31.7 percent of the 1975 real GDP. Fully invested, at an annual rate of return of 10 percent, the windfall would have resulted in an annual increase of permanent income of CR$ 533 million at constant prices. This was equivalent, in turn, to 3.2 percent

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[25] Hernan Garron, in La Nacion, August 6, 1975.

[26] Congreso Nacional Cafetalero, February, 1976 and February, 1977.

of the 1975 GDP.[27] Such increases in permanent income would have required that the whole windfall be profitably invested. To the extent to which this was not the case (i.e., the windfall was consumed or it was poorly invested), the impact on permanent incomes would have been smaller than estimated here. It is mostly from this portion of the increased real incomes that consumption would have come from in the case of a shock perceived as temporary. Thus, a temporary boom should have resulted mostly in an increase in savings and investment. Actual consumption and savings responses would thus reveal perceptions about the boom as well as the constraints faced by economic agents.

This temporary nature of the coffee boom contrasted with the implications of the earlier oil shock, which was perceived by many as having resulted in a permanent change in relative prices and in a reduction of permanent incomes in the oil-importing countries. Although Costa Rica attempted to smooth the negative impact on aggregate expenditures by heavily borrowing abroad, the reduction in consumption that took place at that time meant that the consumption levels later observed during the coffee boom, despite considerable increases over previous years, still represented negative or comparatively small positive deviations from the values forecasted from the old (pre-oil shock) steep consumption trend,

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[27] If the rates of discount and of return used are both 5 percent, the present value of the real windfall would be CR$ 5,770 million (34.3 percent of 1975 GDP) and the annual return on investment of the windfall CR$ 289 million (1.7 percent of GDP). If the rates of discount and of return used are 15 percent, in turn, the present value of the windfall would be CR$ 4,963 million (29.5 percent of GDP) and the return on investment CR$ 744 million (4.4 percent of GDP). If a 25 percent discount rate is used, instead, the present value of the export windfall would have been CR$ 4,362 million at constant import prices, equivalent to 25.9 percent of the GDP. If invested at this higher rate of return, it would have generated an annual increase of CR$ 1,091, quivalent to 6.5 percent of the GDP. The exchange rate for 1975 was CR$ 8.57 per US dollar.

particularly in the early years of the boom. These circumstances may result in an underestimation of consumption flows out of boom income. At the time of the second oil shock, on the other hand, the disturbance was perceived mostly as temporary.

Table 9
Costa Rica: Trade with Central America during the Coffee Boom.
1975-1981

	1975	1976	1977	1978	1979	1980	1981
Exports[a/]	107	131	174	179	175	270[c/]	238
rate of change[b/]	3	22	33	3	-2	54	-12
Imports[a/]	115	135	168	203	212	220	152
rate of change[b/]	1	17	24	21	4	4	-31

[a/] Millions of US dollars.
[b/] Percentages.
[c/] The unusually large increase of exports to Nicaragua came at the end of the Sandinista war.
Source: Banco Central de Costa Rica, Balanza de Pagos, several years.

The other Central American countries, partners in the Common Market, are major coffee exporters and, as such, experienced a coffee boom as well. This, in turn, fueled an induced boom in Central American trade, which added to Costa Rica's export growth. Exports to Central American countries, measured in US dollars, grew at an annual average rate of 20.3 percent over those five years, as shown in Table 9. Imports from Central America grew rapidly, as well, and Costa Rica had a negative trade balance with the rest of the Common Market, except in 1977 and 1980.

Similarly, rapid economic growth during the coffee boom increased Costa Rica's creditworthiness in international capital markets, which were already too willing to lend to the country's public sector. The outstanding balance of the country's external debt had in-

creased from US$ 157 million at the end of 1969 to US$ 520 million at the end of 1975, at an annual average rate of 22 percent. This balance further increased during the boom period, at an annual rate of 34 percent, to reach US$ 2,254 million by 1980, as shown in Table 10. During the same period, the private external debt doubled and reached US$ 1,042 thmillion. Over the boom period (1976-80) net resource transfers to country amounted to US$963, more than the exports windfall. Most of this (89 percent) was a transfer to the public sector.

Table 10
Costa Rica: Foreign Debt during the Boom. 1975-1981

	1975	1976	1977	1978	1979	1980	1981
Public Sector[a/]	520	643	852	1,115	1,492	2,254	2,655
rate of growth	28	24	33	31	34	51	18
Private Sector[a/]	n.a.	523	638	758	770	1,043	956
rate of growth	n.a.	n.a.	22	19	2	35	-8
Total Debt[a/]	n.a.	1,166.	1,490	1,873	2,262	3,297	3,611
Net Resource Transfers[b/]	n.a.	124	183	229	247	180	96
Net Resource Transfer to Public Sector[b/]	n.a.	91	129	145	292	197	158
Real Net Resource Transfers[c/]	n.a.	160	186	210	203	130	65

[a/] Outstanding balances in millions of US dollars.
[b/] Measured in US dollars as the difference between new loans and the flow of amortization and interest payments on the debt.
[c/] In US dollars deflated by the Costa Rican import price index (1975:100).
Source: Ricardo Quesada, "Deuda Externa de Costa Rica," Banco Central de Costa Rica, 1986.

While it is to be expected that a positive trade shock with unrevised expectations (coffee boom) would mostly increase domestic savings, this massive debt shock would be expected to reduce domestic savings, particularly given the high degree of substitution

between foreign and domestic savings that had characterized the country's history.[28] This presents a major difficulty in this paper for the interpretation of the consequences of the coffee boom on savings and investment flows.

III. Aggregate Macroeconomic Impacts

The 1976-1980 terms-of-trade shock and the domestic policy responses to the shock dominated Costa Rica's macroeconomic history during the second-half of the decade and substantially modified the initial conditions for the evolution of the economy during the 1980s. After the shock, the Costa Rican economy would never be the same. In an attempt to isolate the consequences of this temporary trade shock, a set of counterfactual values for the main macroeconomic magnitudes is constructed here and, in turn, contrasted to their actual behavior.[29] The deviations are then attributed to the boom.

The construction of counterfactuals always presents a major challenge. In the present case, the multiplicity of exogenous influences and the complexity of their interactions makes it very difficult, both to design a reasonable counterfactual, and to attribute the observed deviations to a single influence, such as the coffee boom. For these reasons, the differences between actual and counterfactual magnitudes reported here must be interpreted as the

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[28] See Claudio Gonzalez-Vega, "Costa Rica: Macroeconomic Policies, Crises, and Long-Term Growth," cit. and Luis R. Cáceres, "Ahorro, Inversión, Deuda Externa y Catástrofe," El Trimestre Económico, Vol. LII, July-September, 1985.

[29] For convenience, the deviations of observed macroeconomic magnitudes from their counterfactual values are referred to as *windfalls*. Clearly, these differences do not represent a true windfall in all cases, but they are associated with or result from the windfall income generated by the boom.

outcome of the combined influences of the period.[30] Moreover, the magnitude of some of these deviations turned out to be extremely sensitive to the assumptions about key behavioral parameters in the counstruction of the counterfactuals. As a result, the estimated amount of the windfalls is only indicative of their relative importance, but does not represent the actual magnitude of the impacts.[31]

Additional complications in the construction of counterfactuals resulted from the fact that the base year (1975) was not typical; i.e., the 1975 values were not close to their long-term trends. Rather than represent steady-state conditions, the 1975 magnitudes reflected a process of adjustment to another major temporary trade distrubance (the first oil shock), that was still in progress at the onset of the coffee boom. Key parameters were mostly selected on the basis of their trend, rather than 1975 values, in order to correct for this. Further difficulties reflected the absence of entirely consistent data sets, the well-known complications associated with the construction of index numbers with a distant base year (1966, for most Costa Rican macroeconomic series), when economic structures have drastically changed in the meantime, as well as the choice of an appropriate *numeraire* for the comparisons across windfall levels for different variables.[32]

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[30] The shortcomings of the partial equilibrium approach adopted are highlighted by the multiplicity of events and the complexity of the relationships involved. For these reasons, a computable general equilibrium model would have been preferable, but was not feasible at this time, and would still not be free from heroic simplifications.

[31] When appropriate, alternative estimates are reported, in order to indicate a credible range for these values.

[32] To deal with this issue, two alternative *numeraires* were used in the computations: units of imports at constant 1975 prices or units of GDP at constant 1975 prices. Although the absolute amounts estimated differ in each case, relative magnitudes and directions of change are the same.

Table 11
Costa Rica: Increase in Real Income as a Consequence of the Export Boom, 1975-1980

	1975	1976	1977	1978	1979	1980
Gross Domestic Product [a/]	16,805	17,733	19,312	20,522	21,536	21,698
Rate of Growth	2.1	5.5	8.9	6.3	4.9	0.8
Balance of Payments Basis:						
Export Windfall I [b/]	0	852	2,177	1,482	921	839
Real Income I [c/]	16,805	18,585	21,489	22,004	22,457	22,537
Rate of Growth	2.1	10.6	15.6	2.4	2.1	0.4
Export Windfall II [d/]	0	695	1,598	1,067	697	677
Real Income II [d/]	16,805	18,428	20,910	21,589	22,223	22,375
Rate of Growth	2.1	9.7	13.5	3.2	2.9	0.7
National Income Accounts Basis:						
Export Windfall III[e/]	0	745	1,665	1,154	766	774
Real Income III[e/]	16,805	18,478	20,977	21,676	22,302	22,472
Rate of Growth	2.1	10.0	13.5	3.3	2.9	0.8
Export Windfall as a Proportion (%) of:						
Real Income I [c/]	0	4.6	10.1	6.7	4.1	3.7
Real Income II [d/]	0	3.8	7.6	4.9	3.1	3.0
Real Income III[e/]	0	4.0	7.9	5.3	3.4	3.4

[a/] In millions of colones at constant 1975 GDP prices.

[b/] In millions of colones at constant 1975 import (foreign) prices and constant exchange rates. Values in US dollars (Balance of Payments Accounts) from Table 8 converted to colones and deflated by the import price and exchange rate indexes.

[c/] In millions of constant 1975 colones, with windfall valued at constant domestic import prices.

[d/] Windfall measured in millions of colones at constant 1975 GDP prices. Values in US dollars converted to colones and divided by the GDP deflator.

[e/] In millions of constant 1975 colones. Export values from National Income Accounts in GDP prices of 1975.

Source: Banco Central de Costa Rica, Estadisticas 1950-1985, 1986 and Table 8.

3.1 Windfall Income

Real income was higher during the 1976-1980 period than otherwise, as a consequence of the terms-of-trade shock, which increased the economy's purchasing power well beyond normal levels. Following Bevan, Collier, and Gunning, real income during the period was estimated as the sum of Gross Domestic Product, at constant 1975 prices, plus the export windfall, as already computed in Table 8, which augmented income in a manner similar to the discovery of new resources.[33]

During most of the boom period, the real rate of growth of the GDP was exceptionally high, as shown in Table 11. Actually, the rate for 1977 (8.9 percent) was the highest observed since 1965 (9.8 percent), and has not been replicated ever since. Clearly, this acceleration of output growth was in part associated both with the recovery from the first oil shock and with the coffee boom, and would not have been as pronounced in the absence of this external shock, which stimulated domestic demand and trade within the CACM and which most likely accelerated, rather than slowed down, the rate of foreign borrowing.

It was not possible to measure the extent to which this output expansion was directly due to the coffee boom. It is important to recognize, however, that this acceleration of output growth, whether induced by this boom or not, added to the rapid increase of real income during the period and in part explained the observed macroeconomic behavior. The paper adopts, nevertheless, the conservative assumption of not attributing this output growth

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[33] Bevan, Collier, and Gunning, op. cit., p. 146.

to the boom (except for a minor portion of it[34]) and, to this extent, this exercise underestimates the amount of windfall income associated with the coffee boom.[35]

Moreover, real income grew, in addition to this rapid output expansion, as a consequence of the export windfall. The resulting increase was extraordinary. During the five-year period, real income was at least 6 percent higher than otherwise, although the expansion was not uniform over time. Real income grew at a rate of over 10 percent in 1976 and of about 15 percent in 1977.[36] This rate of growth declined afterwards, as a reflection of the reduction of the export windfall, but real income remained about 4 percent higher than otherwise during the last three years of the period.

Counterfactual real income would be, on the other hand, equal to counterfactual GDP in the absence of the export windfall. The difficult question is to know how much GDP would have been had the trade shock not taken place. Following Bevan, Collier, and Gunning, counterfactual income can be estimated as the actual GDP minus the return on the additional investment induced by the boom. Windfall real income is thus the sum of

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[34] The return on windfall investment was computed as windfall GDP, as shown in Table 12.

[35] To the extent to which most other windfalls are computed by postulating fixed proportions with respect to counterfactual GDP, this procedure underestimates those deviations, as well.

[36] Table 11 contains three estimates of real income. The first two are based on Balance of Payments statistics, as in Table 8. One of them adds to real GDP, the export windfall, measured in constant import prices, as in Bevan et al. The other one adds, instead, the export windfall measured in constant GDP prices, in order to use a common numeraire. The third estimate is based on the National Income Accounts and measures the export windfall in constant GDP prices. The results from all simulations follow an identical pattern, with real income rates of growth well above those for the GDP in 1976 and 1977, and below afterwards.

windfall exports plus the addition to GDP that can be attributed to the returns from the extra investment out of earlier windfall income, comparatively a very small amount, as shown in Table 12.[37]

The accumulated windfall income (extra exports plus extra GDP) was substantial, amounting to 6,630 million colones, when the export windfall is measured in units of imports at constant 1975 prices (Version I), and to 5,331 million colones, when the export windfall is measured in units of GDP at constant 1975 prices. This is equivalent to one-third of the 1975 GDP. Windfall real income was particularly substantial in 1977, when it represented between 8 and 10 percent of total real income, depending on the assumptions.

As reported, the procedure adopted in this paper, following Bevan et al., generated a very small GDP windfall, as compared to the deviations from the GDP trend observed during the period. An alternative counterfactual might have been constructed, by extrapolating past GDP growth.

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[37] When 25 percent was used, the accumulated GDP windfall was 925 million, compared to 359 million constant colones of 1975 that results from a 10 percent rate of return. Even with a 25 percent return, windfall GDP turns out to be very small. This contrasts with the observed acceleration of output growth.

Table 12
Costa Rica: Windfall Real Income, Windfall GDP, and Windfall Fixed Investment, 1975-1980

	1975	1976	1977	1978	1979	1980
A. Observed:						
Real Income I[a/]	16,805	18,585	21,489	22,004	22,457	22,537
Propensity to invest[b/]	22.0	23.4	22.4	23.0	26.2	23.9
Fixed investment[c/]	3,695	4,356	4,806	5.066	5,877	5,386
Rate of growth	n.a.	17.9	10.3	5.4	16.0	-8.4
Counterfactual:						
Real Income I[d/]	16,805	17,733	19,287	20,463	21,444	21,515
Fixed investment[e/]	3,695	4,105	4,456	4,737	4,964	4,980
Rate of growth	n.a.	11.1	8.6	6.3	4.8	0.3
Windfalls:						
Real income I	0	852	2,202	1,541	1,013	1,022
Fixed investment	0	251	341	329	913	406
GDP[f/]	0	0	25	59	92	183
B. Observed:						
Real income III[g/]	16,805	18,478	20,977	21,676	22,302	22,472
Fixed investment[h/]	3,695	4,331	4,692	4,991	5,836	5,370
Rate of growth	n.a.	17.2	8.3	6.4	16.9	-8.0
Counterfactual:						
Real income III[d/]	16,805	17,733	19,289	20,477	21,488	21,587
Fixed investment[e/]	3,695	4,105	4,465	4,740	4,974	4,997
Rate of growth	n.a.	11.1	8.3	6.2	4.9	0.4
Windfalls:						
Real income II	0	745	1,688	1,199	814	885
Fixed investment	0	226	226	251	862	373
GDP[f/]	0	0	23	45	48	111

a/ Millions of constant 1975 colones, computed with the export windfall in constant import prices, from Table 11 (Balance of Payments version).

b/ Observed ratios of gross fixed capital formation with respect to the GDP, both in current prices.

c/ In millions of constant 1975 colones, from applying the observed nominal propensities to real income. It is not the quantum of investment, since the deflator are import prices rather than capital goods prices.

d/ Observed real income (GDP) minus a 10 percent rate of return on accumulated windfall investment up to the previous year.

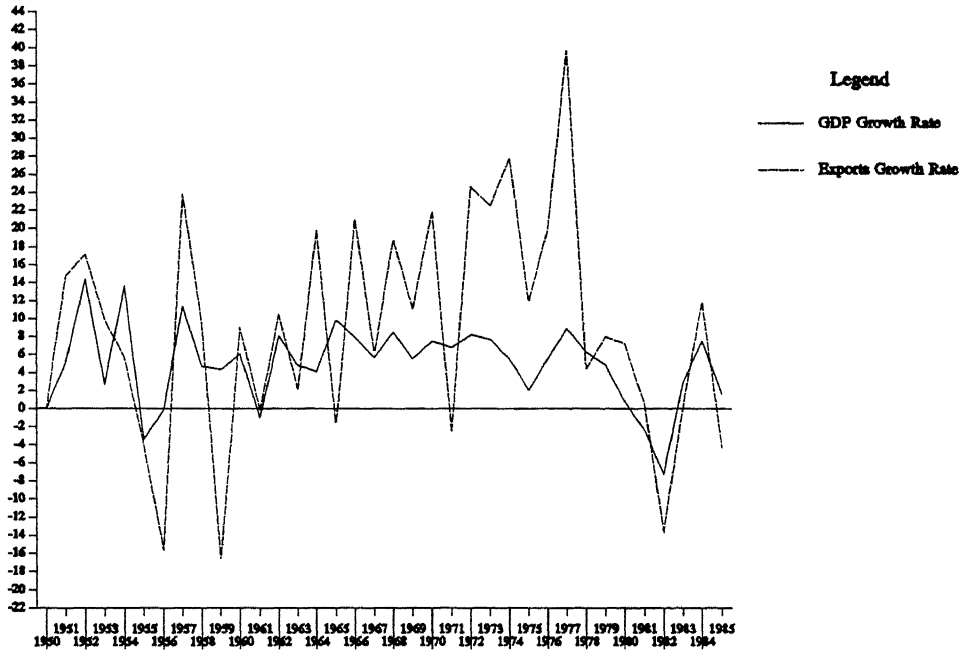
e/ Computed under the assumption of a fixed propensity to invest out of counterfactual income of 23.149 percent.

f/ Return on accumulated windfall investment in earlier years.

g/ Millions of constant 1975 colones, computed with the export windfall in units of GDP at 1975 prices, from Table 11 (National Income Accounts version III).

h/ Millions of constant 1975 colones, from applying observed nominal propensities to real income, measured in units of GDP at 1975 prices.

Figure 3
Costa Rica: Real Rates of Growth of Gross Domestic Product, and Rates of Growth of Exports in US Dollars, 1950-1985



During most of the the 1950-1980 period, the Costa Rican economy grew at a very satisfactory pace, as shown in Figure 3. Exceptionally rapid growth in the early 1950s, fueled by traditional exports, was interrupted lade in the decade, as international markets became less favorable and coffee prices declined. Growth accelerated again after the formation of the Central American Common Market, in the mid-1960s, and was rapid until the first oil shock, when it was interrupted again. The coffee boom generated another burst of rapid growth, to be followed by a dramatic decline of output in the early 1980s. If the

1961-79 period is considered, the rate of real GDP growth was 6.5 percent per year.[38] This made possible a 3.4 percent annual increase of per capita GDP, despite a high rate of population growth.

The following linear regression was used in order to estimate the real GDP trend, for the 1957-1975 period:

$$GDP\ (t) = -294{,}371 + 150.86\ t + 0.829\ GDP\ (t\text{-}1) + 0.057\ AR(1)$$

with adjusted R-Square of 0.996 and Durbin-Watson of 1.96.

Real GDP for 1974 had been about 110 million colones above its trend value, due in part to large coffee exports and in spite of the oil shock, while 1975 real GDP had been well below (about 415 million colones less) the forecasted trend. At the end of the boom and with the fiscal and foreign debt crisis, on the other hand, observed 1981 real GDP was again well below the trend (about 750 million colones). The coffee boom constituted, therefore, a period of real GDP values reaching well above the trend, bounded by two years when the actual observations were well below the same trend.

Table 13
Costa Rica: Gross Domestic Product Windfall and Deviations from Trend, 1976-1980

	1976	1977	1978	1979	1980
Observed Gross Domestic Product[a/]	17,733	19,312	20,522	21,536	21,698
Rate of Growth (%)	5.5	8.9	6.3	4.9	0.8
Trend Gross Domestic Product[b/]	17,631	18,848	19,352	20,218	21,087
Rate of Growth (%)	4.9	4.9	4.7	4.5	4.3
Deviations from Trend	102	823	1,170	1,318	611
GDP Windfall[c/]	0	25	59	92	183

a/ Millions of CR colones at constant 1975 prices.
b/ From linear regression.
c/ As computed in Table 12.

[38] The average annual rate of real GDP growth was 7.0 percent for 1963-1974.

The deviations of observed GDP from this trend, during the coffee boom period, are presented in Table 13, where they are compared to the windfall GDP estimated in Table 12. The trend rates of growth assumed in Table 13 are below the historical average of the GDP rates of change and slowly decline during the period. This recognized the observed steady reduction in those rates of growth. The gradual tendency of the rate of growth of output to decline through time possibly reflected rapidly diminishing import substitution opportunities within the Central American Common Market, itself quite a small market, and unfavorable changes in relative factor endowments in Costa Rica, including the exhaustion of the agricultural frontier, as well as the impact on factor productivity of the distortions introduced by a protectionist strategy of development, the growing institutionalization of rent-seeking and other not directly productive uses of resources, and the accompanying excessive growth of the public sector.[39] The coffee boom merely postponed the process of gradual stagnation that would have most likely taken place in its absence. When the boom was over, by the turn of the decade, the Costa Rican GDP dropped dramatically, and a decade later its real value had yet to reach the earlier trend (even when forecasted at these low, declining rates of growth).

Clearly, the GDP windfall estimates in Table 12 are much smaller than the observed deviations from the trend shown in Table 13. A large portion of these deviations may be most likely directly or indirectly related to the boom and may reflect, in addition to the returns from windfall investment considered here, the output from increased capacity

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[39] For a discussion of these issues, see Victor Hugo Cespedes, Claudio Gonzalez-Vega, and Ronulfo Jimenez, Costa Rica frente a la Crisis. Politicas y Resultados. San Jose: Academia de Centroamerica, 1990.

utilization during the boom as well as other boom-induced impacts. This interpretation is plausible, in view of the rapidly expanded output very soon after the onset of the boom. If this was the case, the procedure adopted in this paper underestimates windfall GDP and, thereby, windfall income as well as the induced windfalls in the disposition of income (consumption and investment). Conservative results are thus reported here.

3.2 Asset and Liability Changes

Increases in real income are accompanied by changes in asset holdings if any of the additional income is saved. When the temporary trade shock is inclusive to existing permanent income expectations or, if exclusive, such expectations are not revised, it is predicted that most of the windfall income will be saved. Only to the extent that permanent income is increased by the shock, will consumption, rather than savings, increase.[40] In order to estimate propensities to save out of windfall income, counterfactuals to the observed asset changes have to be constructed.

In order to estimate windfall real income, counterfactual and windfall gross fixed capital formation were already computed in Table 12. Fixed investment has been the most dynamic component of domestic demand in Costa Rica. During the 1966-1979 period, fixed investment grew at a real rate of 10.4 percent per year, almost twice as rapidly as private consumption. During the crisis of the early 1980s, it was, however, the component of aggregate demand that declined the most. The (real) share of fixed investment in domestic

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[40] As claimed, it is initially assumed that in Costa Rica expectations were partly inclusive and partly exclusive, but unrevised.

absorption augmented, in turn, from 15 percent in the early 1960s, to about 24 percent in the late 1970s, and it was particularly high during the coffee boom. As a proportion of the GDP, fixed investment increased from 17 percent in the late 1960s, to 21 percent in the early 1970s, and it reached a peak of 28 percent in 1979.

Actual fixed capital formation was estimated by applying the observed propensities to invest (in current prices) to the real income series for 1976-1980, as shown in Table 12. Counterfactual capital formation was obtained, in turn, by assuming a propensity to invest out of counterfactual real income of 23.149 percent for the boom period.[41] The difference is windfall investment. Two periods of rapid fixed capital formation (investment booms) are observed, one in 1976, when fixed capital formation grew almost 18 percent, and another one in 1979, when it augmented over 16 percent in real terms. The first boom occured very soon after the onset of the coffee shock. The second one was mostly related to accelerating borrowing abroad. The investment windfall was particularly large in 1979. Accumulated, this windfall amounted to 2,240 million colones at constant import prices (version I) or to 1,938 million colones at constant GDP prices (version III). This represented 34 or 36 percent of the real income windfall, respectively.

An examination of the timing of these windfalls reveals, however, an uneven path, as shown in Figure 4. The investment windfall was equivalent to almost 30 percent of the income windfall in 1976, but this share dropped to about 15 percent in 1977 and to 20 percent in 1978. Towards the end of the period, on the other hand, the investment windfall

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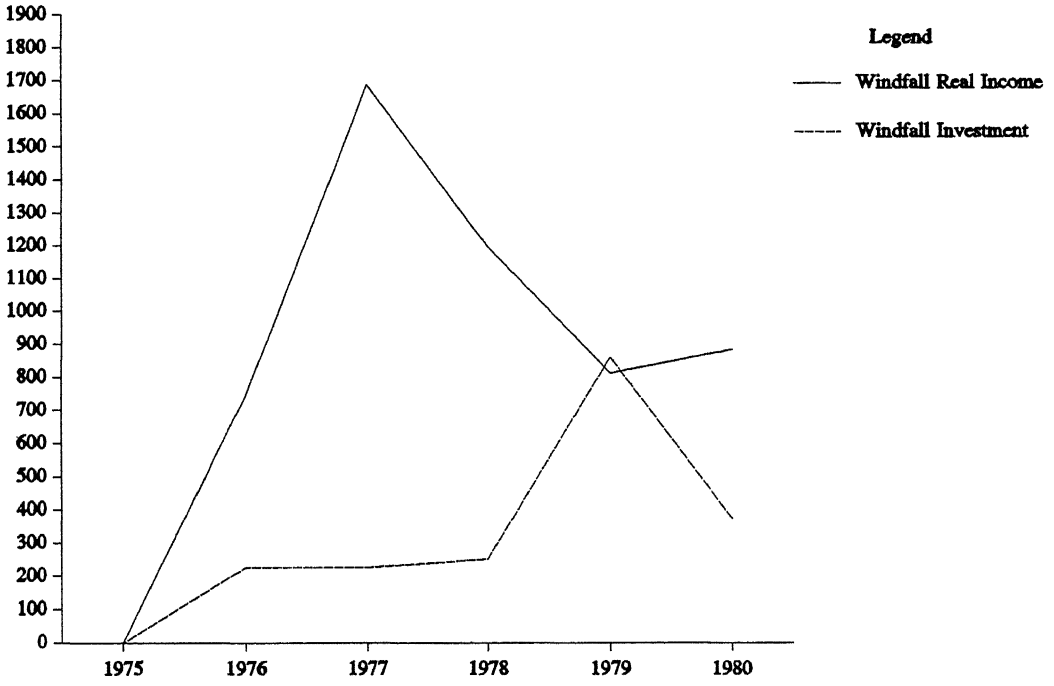
[41] This is the ratio forecasted for 1975 from the time trend of the real investment to GDP ratio. Below, a ratio of 22 percent will be assumed for further computations.

was substantial, compared to the income windfall. In effect, in 1979 windfall investment might have surpased the income windfall, and in 1980 it was equivalent to two-fifths of windfall income and to about three-fifths of windfall exports.

Figure 4
Costa Rica: Windfall Real Income and Windfall Investment, 1975-1980



While these sharp fluctuations in the marginal propensity to invest out of windfall income may be, in part, related to adjustments in the timing of fixed capital formation to changes in relative prices and other macroeconomic circumstances, the large propensities observed towards the end of the period indicate that investment was being induced by (and financed from) something else, in addition to the windfall income from the coffee boom.

Indeed, such a surge of investment was most likely associated with the explosive expansion of the country's foreign borrowing towards the end of the decade.

The parallel implications of the external debt boom make it very difficult to evaluate the consequences of the coffee boom. First, it becomes very difficult to construct a counter-factual for the country's liabilities abroad. What would have been the evolution of Costa Rica's foreign borrowing in the absence of the terms-of-trade shock? On the one hand, the international environment of the second-half of the 1970s was such that a mere extrapolation of Costa Rica's external borrowing before 1975 would not be appropriate. It is evident that this borrowing would have accelerated even in the absence of the coffee boom (as it already had, with the first oil shock). On the other hand, the terms-of-trade boom obviously increased both the country's creditworthiness with international lenders as well as the authorities' willingness to borrow abroad. Particularly towards the end of the period, borrowing abroad was the political economy response to the need to finance unsustainable expenditures triggered, in turn, by the boom. Thus, in the absence of the boom, foreign borrowing would have been less than observed and there was indeed an external debt windfall, albeit difficult to isolate from the export boom.

Second, while the windfall in real income is expected to increase savings and, thereby, holdings of foreign assets, exceptional access to foreign savings tends to increase the country's liabilities and it may thus reduce savings. Indeed, there is substantial evidence indicating a strong substitution effect between foreign and domestic savings in Costa Rica. The final outcome was the net effect of these two contradictory influences. Increased savings are expected from the boom, but if the foreign borrowing effect was too strong, the

propensity to save out of windfall income may have just been reflected as less dissaving (less debt) than otherwise. It is almost impossible to separate these two effects.

Table 14
Costa Rica: Windfall Foreign Assets and Windfall Total Savings, 1975-1980

	1975	1976	1977	1978	1979	1980
Observed:						
Real Income III[a/]	16,805	18,478	20,977	21,676	22,302	22,472
Propensity to borrow abroad[b/]	8.5	6.0	5.5	7.9	10.3	10.3
Current Account[c/]	1,427	1,109	1,147	1,702	2,290	2,324
Counterfactual:						
Real Income III[a/]	16,805	17,733	19,289	20,477	21,488	21,587
Current Account[d/]	1,427	1,507	1,640	1,741	1,826	1,835
Windfalls:						
Foreign Assets[e/]	0	399	492	40	-464	-489
Fixed Investment[a/]	0	226	226	251	862	373
Total Savings[f/]	0	625	718	2991	398	-116
Propensity to Save[g/]	-	83.9	42.5	24.3	48.9	-13.1

a/ From National Income Accounts, in million colones at constant 1975 GDP prices (Table 12).
b/ Observed ratios of the current account with respect to the GDP, in current prices.
c/ In million colones, at constant 1975 GDP prices, from applying observed propensities to real income.
d/ Computed under the assumption of a fixed propensity to borrow abroad of 8.5 percent of GDP.
e/ Accumulation of foreign assets as a result of a current account surplus (or less deficit than expected). A negative sign indicates accumulation of liabilities.
f/ Foreign asset accumulation windfall plus gross fixed capital formation windfall.
g/ Ratio of savings windfall to real income windfall.

A first approximation to this savings windfall, a combined result of both sets of influences, is computed in Table 14 and shown in Figure 5. Total savings are defined as the

accumulation of foreign assets and of domestic assets (represented, for the time being, by gross fixed capital formation, as estimated in Table 12). In order to construct a counter-factual of foreign asset accumulation, a fixed ratio of the current account deficit to the GDP, of 8.5 percent, was assumed.[42] The coffee boom seems to have brought about the windfall accumulation of foreign assets (reduced current account deficit) in the early years (1976 and 1977), but this was followed by windfall borrowing abroad (1979 and 1980), as the terms-of-trade shock was gradually replaced by the debt shock. Under these assumptions, the net result was an addition of 22 million colones, at constant 1975 GDP prices, to the country's foreign debt, as shown in Table 14. Given the values chosen for the parameters, on the aggregate the two sets of influences on savings abroad more or less cancelled out, but the accumulation followed a well-defined pattern over time.[43]

Windfall total savings, defined as the addition of the foreign assets and investment windfalls, are shown in Table 14, as well. Under present assumptions, only in 1980 was there a decline of savings below counterfactual predictions. Over the five-year period, accumulated windfall savings amounted to 1,916 colones.[44] This represented 36 percent

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[42] This is the observed 1975 value of the ratio. The forecast for 1975, on the basis of a linear regression trend, was 11.9 percent, a reflection of accelerating foreign borrowing during the first oil shock, but not sustainable. The 1974 value (9.7 percent) was considered to be too high, as well.

[43] For further discussion of this issue, see the next section. In Table 17, the foreign assets accumulation windfall is obtained as the difference between the exports and the imports windfall. While following the same time pattern, the results from this procedure suggest a negative outcome (accumulation of liabilities). Table 18 reports results of a relevant sensitivity analysis.

[44] From now on, unless otherwise noted, all figures are in million colones, as constant 1975 GDP prices.

of windfall real income. This average masks large differences in savings rates over time and, as discussed below, between the private and the public sectors.

Figure 5
Costa Rica: Windfall Imports, Windfall Foreign Asset Accumulation, and Windfall Total Asset Accumulation, 1975-1980

Apparently, over four-fifths of windfall income were saved in 1976, but this propensity to accumulate assets rapidly declined afterwards, except in 1979, and it became negative in 1980. If this last year is excluded, the implicit propensity to save out of windfall income would be 46 percent. A high fraction of windfall income was saved during the period (comparable to 48 percent in Kenya), confirming the hypothesis that the shock was essentially perceived as temporary. The accumulation of assets would have been even higher, moreover, in the absence of comparatively favorable terms for borrowing in international

financial markets, particularly since a good portion of the extra debt financed public current expenditures, rather than investment.

3.3 Aggregate Supply Windfalls

In order to further examine the macroeconomic consequences of the coffee boom and to further explore its impact on asset accumulation, counterfactuals were constructed and windfalls were estimated for all of the components of aggregate supply and demand. The observed ratios of each macroeconomic aggregate with respect to the GDP,in current prices, were applied to real income estimates obtained as in Table 11, for each year of the period.[45] The result of these computations were estimates of the observed aggregates, measured in units of GDP at constant 1975 prices.[46] Counterfactuals were then computed for each variable, by multiplying counterfactual GDP by the corresponding ratios, assumed constant over the whole period. The value of the ratio was based on the historical evolution of these magnitudes prior to the shock. *Windfalls* were finally computed, as the difference between the *observed* and the counterfactual values of each variable. Attempts were made to maintain the consistency of the aggregate supply and demand accounts throughout the exercise.[47] The results obtained showed different degrees of sensitivity to changes in the

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[45] These estimates are based on windfall exports computed from the National Income Accounts, measured in constant 1975 GDP prices (version III). The ratio of fixed investment to the GDP used was 22 percent, rather than the 23.149 percent used in Table 12.

[46] This procedure thus obviates, in building the counterfactual, changes in relative prices induced by the shock.

[47] Changes in inventories were computed as the residuals in the identity. This variable incorporated, therefore, any errors in the procedure.

assumed values of the relevant parameters. Credible results are presented first, followed by a simple sensitivity analysis.

During the coffee boom total imports increased more rapidly than any other macroeconomic aggregate. Between 1975 and 1980, on the average imports (measured in US dollars) increased 17 percent per year. In contrast, they had increased at an average annual rate of 7.7 percent between 1956 and 1965 and of 14.6 percent between 1965 and 1975, with particularly high rates of growth since 1972. These substantial import flows during the boom were the consequence both of the increased purchasing power of Costa Rican exports and of accelerated foreign borrowing. This borrowing made it possible for the current account deficit of the balance of payments to steadily increase from 8.4 percent of GDP in 1976 to the unsustainable 15.3 percent of GDP in 1980. In real terms, the country's trade deficit reached 18.9 percent of the GDP in 1977 and remained close to this high level for the remainder of the decade.

An imports counterfactual was built by applying a constant ratio (0.32 percent) to counterfactual GDP, as shown in Table 15. Historically, in nominal terms the ratio of imports to the GDP had increased steadily over the years, from 26 percent in the late 1950s, to 37 percent just before the first oil crisis (1972) and to 48 percent in 1974. The average value of this ratio for 1957-1972 had been 30 percent. In real terms, on the other hand, this ratio increased from 35 percent in the mid-1960s, to 42 percent in the mid-1970s, when it obtained exceptionally high values. The ratio chosen (32 percent) was compatible with a sustainable current account balance of 7 to 10 percent of the GDP. Higher ratios would

have implied a much greater use of foreign savings, not credible in the absence of the coffee boom and of boom-induced increases in borrowing abroad.

Table 15
Costa Rica: Imports and Aggregate Supply Windfalls, 1975-1980

	1975	1976	1977	1978	1979	1980
Imports[a/]	694	770	1,022	1,166	1,397	1,524
Rate of Growth	-3.6	11.0	32.6	14.1	36.7	9.1
Observed:						
Real Income[b/]	16,805	18,478	20,977	21,676	22,302	22,472
Propensity to Import[c/]	38.6	34.9	36.3	36.0	37.2	36.8
Imports[d/]	6,478	6,451	7,622	7,810	8,295	8,274
Counterfactual:						
Real Income[e/]	16,805	17,733	19,269	20,434	21,441	21,537
Imports[f/]		5,675	6,166	6,539	6,861	6,892
Windfalls:						
Imports	0	776	1,456	1,271	1,434	1,382
Gross Domestic Product[g/]	0	0	42	88	95	161
Aggregate Supply	0	776	1,499	1,360	1,528	1,544
As a proportion (%) of Windfall Income:						
Import Windfall	-	104	78	96	158	147
Supply Windfall	-	104	80	103	168	164
Windfall Imports as a proportion of Imports	-	12.0	19.7	16.2	17.3	16.7

a/ Millions of US dollars, in current prices, according to Balance of Payments statistics.
b/ GDP plus export windfall, in million colones at constant 1975 GDP prices.
c/ Ratio of imports to the GDP, in current prices.
d/ From multiplying observed real income by the propensity to import.
e/ Computed by subtracting the returns from windfall investment from real GDP, assuming a rate of return of 10 percent and a ratio of investment to the GDP of 22 percent.
f/ Counterfactual income times 32 percent.
g/ Returns on accumulated windfall investment.

Windfall imports were particularly substantial in 1977, mostly out of windfall export revenues, and in 1979, financed with large inflows of foreign savings and by the drawing down of the assets (reserves) accumulated earlier. The windfall accounted for no less than 12 percent and up to one-fifth of the total imports of each year. Over the period, this imports windfall amounted to 6,319 million, about 115 percent of windfall real income, as shown in Figure 5 and in Table 15.[48] This last proportion was even higher towards the end of the period, as borrowing abroad accelerated. From this perspective, therefore, the coffee boom was gradually transformed, as its size began to decline, into a foreign debt-induced import boom. Restrictions on the country's access to international capital markets curtailed this increments in imports by 1980 and, when this access was eventually lost, the ratio of imports to the GDP sharply dropped, to 31 percent in real terms in 1982.

Windfall aggregate supply, measured as the sum of windfall imports and windfall GDP, indicates the increased availability of goods for domestic absorption and for exports, as a consequence of the trade shock. The accumulated windfall amounted to 6,707 million for the period, namely 122 percent of the real income windfall. This proportion was much higher during the last two years of the period than in its earlier part, as imports were increasingly financed with foreign savings.

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[48] This windfall is very sensitive to assumptions about the imports to GDP ratio. Its accumulated amount would have been 4,311 million for a 34 percent ratio and 8,328 million for a 30 percent ratio.

3.4 Domestic Absorption Windfalls

This section explores the extent to which windfall real income may have been used to expand private and public consumption and investment. During 1966-1979, government consumption increased faster than private consumption, and the difference in rates of growth increased through time. The (nominal) share of government consumption in the aggregate domestic absorption increased from 11 percent in the late 1960s, to 13 percent in the late 1970s, and to over 15 percent in 1982, at the worst moment of the fiscal crisis. The share of private consumption in aggregate domestic absorption steadily declined, on the other hand, from 71 percent in 1966 to 66 percent in 1974. It further declined during the coffee boom, to 62 percent at the end of the decade. As already indicated, investment grew twice as rapidly as private consumption during 1966-1979 and its share became particularly high during the boom. The exceptional rates of growth of fixed investment in 1976 and 1977 were clearly associated with the export windfall and the accompanying savings during the early stages of the boom, while the large increase of fixed capital formation in 1979 was related, instead, to the debt boom and to the behavior of the new Carazo administration. The rate of growth of government consumption accelerated in 1976 and 1977 as well, fueled by the export boom and, again, in 1979, paid for with foreign borrowing.

Counterfactuals were constructed under the assumption of a ratio of private consumption with respect to the GDP of 70 percent, of government consumption to the GDP of 16 percent, and of fixed investment to the GDP of 22 percent.

Table 16
Costa Rica: Private Consumption, Government Consumption, and Fixed Investment Windfalls, 1975-1980

	1975	1976	1977	1978	1979	1980
Observed Ratios with Respect to the GDP:[a/]						
Private Consumption	71.6	66.4	65.2	67.6	66.9	65.6
Government Consumption	15.2	16.0	16.0	16.8	18.1	18.2
Total Consumption	86.8	82.3	81.2	84.	85.0	83.8
Fixed Investment	22.0	23.4	22.4	23.0	26.2	23.9
Observed[b/]						
Private Consumption	12,306	12,260	13,680	14,653	14,921	14,730
Government Consumption	2,558	2,955	3,33	3,639	4,026	4,095
Total Consumption	14,864	15,215	17,033	18,292	18,947	18,825
Fixed Investment	3,695	4,331	4,692	4,991	5,836	5,370
Counterfactual:[c/]						
Private Consumption	12,306	12,413	13,488	14,304	15,009	15,076
Government Consumption	2,558	2,837	3,083	3,269	3,431	3,446
Total Consumption	14,864	15,250	16,571	17,573	18,440	18,522
Fixed Investment	3,695	3,901	4,239	4,495	4,717	4,738
Windfalls:						
Private Consumption	0	-154	192	350	-88	-346
Government Consumption	0	118	269	369	595	649
Total Consumption	0	-36	461	719	507	303
Fixed Investment	0	430	452	496	1,119	632
As a proportion (%) of windfall income:						
Private Consumption	-	-21	10	27	-10	-37
Government Consumption	-	16	14	27	65	69
Total Consumption	-	-5	25	55	56	32
Fixed Investment	-	58	24	38	123	67
Windfall as a proportion (%) of total:						
Private Consumption	-	-1.3	1.4	2.4	-0.6	-2.3
Government Consumption	-	4.0	8.0	10.1	14.8	15.8
Total Consumption	-	-3.8	2.7	3.9	2.7	1.6
Fixed Investment	-	9.9	9.6	9.9	19.2	11.8

[a/] Magnitudes in current prices. Percentages.

[b/] From the multiplication of observed real income, as in Table 15, by the observed ratios with respect to the current GDP. Million colones at constant 1975 GDP prices.

[c/] From the multiplication of counterfactual real income by a constant propensity for private consumption of 70 percent, for government consumption of 16 percent, and for fixed investment of 22 percent of the GDP.

The resulting windfalls are shown in Table 16 and in Figures 4 and 6.[49] A comparatively large share (57 percent of windfall income) was associated with windfall investment, which amounted to 3,128 million for the whole period. The propensity to invest was high in 1976 and, particularly, in 1979 and 1980. The share of government consumption (36 percent of windfall income) was also high and grew rapidly over time. The accumulated government consumption windfall amounted to 2,000 million. These estimates imply, on the other hand, that there was practically no private consumption windfall. This suggests that the private sector perceived the shock as temporary and saved most of its windfall income. The negative private consumption windfalls estimated for the last years of the period may reflect a crowding out of private consumption by overexpanded government activities triggered by the boom, and illustrate the macroeconomic situation at the onset of the crisis.

The small (even negative) estimated private consumption windfalls are consistent with the actually observed reduction of the ratio of private consumption with respect to the GDP, well below historical levels, during the boom. This windfall amounted, as most, to 2.4 percent of total private consumption (1978). The rising importance of the windfall in the case of government consumption, on the other hand, reflects the contrasting behavior of these two sectors. Towards the end of the period, the windfall was equivalent to over 15

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[49] The assumption about private consumption resulted in a negative windfall during some years. With a 72 percent ratio, this windfall would have been negative every year, an unlikely event. A lower ratio, such as 68 percent, on the other hand, would have required an exceptional drawing down of inventories, in order to allow the observed levels of consumption, also an unlikely event. These discrepancies highlight the shortcomings of not using a computable general equilibrium model. See below for a simple sensitivity analysis. Although the magnitudes of the estimated windfalls reported here are sensitive to parameter changes, the trends described are replicated by simulations under different assumptions.

percent of total government consumption, and this was associated with an increase in the ratio of these expenditures with respect to the GDP. In the case of fixed investment, in turn, the windfall amounted to about one-tenth of total investment every year, except in 1979, when it was equivalent to almost one-fifth, as shown in Table 16.

The annual windfalls observed, as well as the total windfalls accumulated over the five-year period, are shown in Table 17 for all major macroeconomic magnitudes. Real income windfalls were particularly substantial in 1977 and 1978, when the export windfalls were especially high. Over the period, the export earnings windfall accounted for 93 percent of the real income windfall, with the rest being generated by the GDP windfall. Substantial import windfalls, added to these GDP additions, resulted in aggregate supply windfalls above real income windfalls every year except in 1977.

Added, total private and government consumption windfalls were high in 1978 and 1979, when they accounted for over one-half of the real income windfall. Nevertheless, while the private consumption windfall declined, the government consumption windfall sharply increased over time. In the end, the accumulated government consumption additions accounted for most of the total consumption windfall.

Table 17
Costa Rica: Aggregate Supply and Demand Windfalls and Asset Accumulation Windfalls, 1976-1980

	1976	1977	1978	1979	1980	Total
Windfalls:[a/]						
Real Income	745	1,708	1,242	961	936	5,491
Gross Domestic Product	0	43	88	5	161	387
Imports	776	1,456	1,271	1,434	1,382	6,319
Aggregate Supply	776	1,499	1,360	1,528	1,544	6,707
Exports	745	1,665	1,154	766	774	5,104
Private Consumption	-154	192	350	-88	-346	-46
Government Consumption	118	269	369	595	649	2,000
Total Consumption	-36	461	719	507	303	1,955
Fixed Investment	430	452	496	1,119	632	3,128
Foreign Assets	-31	209	-117	-668	-608	-1,215
Total Assets	398	665	378	451	24	1,913
Total Assets and Inventories	36	-418	-631	-413	-141	-1,567
As a proportion (%) of the Real Income Windfall:						
Real Income	100	100	100	100	100	100
Gross Domestic Product	0	2	7	10	17	7
Imports	104	78	96	158	147	115
Aggregate Supply	104	80	103	168	164	122
Exports	100	89	88	84	82	93
Private Consumption	-21	10	27	-10	-37	-1
Government Consumption	16	14	28	65	69	36
Total Consumption	-5	25	55	56	32	36
Fixed Investment	58	24	38	123	67	57
Foreign Assets	-4	11	-9	-73	-65	-22
Total Assets	53	35	29	50	3	35
Total Assets and Inventories	5	-22	-48	-45	-15	-29

[a/] Computed under the assumptions of Tables 14, 15, and 16.

Both domestic and foreign assets were accumulated early in the period, leading to high savings rates. Additional foreign borrowing later on reduced, however, the savings effect of the boom, which became very small by 1980. If estimated windfalls in inventory changes are included in the computation of savings rates, these are sharply reduced, as a consequence of inventory desaccumulation, except in 1980, when rapid inventory accumulation anticipated the forthcoming major devaluations of 1981.[50]

As indicated, the absolute magnitudes of the estimated windfalls are sensitive to assumptions about key parameters. One of them is the ratio of imports to the GDP, so far asumed to be 32 percent. This assumption implies moderate access to foreign savings, a current account deficit of 7 to 10 percent of the GDP, in the counterfactual (no boom) situation. If a ratio of 30 percent is assumed instead (column B, Table 18), implying even less access to foreign savings for the counterfactual, the resulting imports windfall becomes almost 30 percent higher (8,328 million over five years) and the windfall accumulation of external debt reaches almost 60 percent of windfall income. Had the country's counterfactual access to foreign borrowing been low, therefore, the experience of the period would have been associated with substantially larger current account deficits and lower propensities to save than otherwise.

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[50] Results about inventory changes must be interpreted with caution, since they were obtained as residuals from the aggregate supply and demand identity. Actually, inventories were drawn down in 1975 (after the 1974 devaluation) and in 1979 (when Carazo did not devalue in 1978). Substantial accumulations took place in 1977 (in anticipation of an expected devaluation) and in 1980.

Table 18
Costa Rica: Sensitivity of Supply and Demand Windfalls, for the Five-year Period

	A	B	C	D	E	F	G
Windfalls:							
Real Income	5,491						5,331
Gross Domestic Product	387						227
Imports	6,319	8,328	4,311				6,268
Aggregate Supply	6,707	8,715	4,698				6,495
Exports	5,704						
Private Consumption	-46			-2,054	1,962		-158
Government Consumption	2,000					4,009	1,937
Total Consumption	1,955			-54	3,962		1,816
Fixed Investment	3,128					3,063	1,975
Foreign Assets	-1,215	-3,224	793				-1,164
Total Assets	1,913	-95	3,921				773
Total Assets and Inventories	-1,567			441	-3,575	-3,575	-1,590
As a Proportion (%) of the Real Income Windfall:							
Real Income	100						
Gross Domestic Product	7						4
Imports	115	152	79				118
Aggregate Supply	122	159	86				122
Exports	93						96
Private Consumption	-1			-37	36		-3
Government Consumption	36					73	37
Total Consumption	36			-1	72	72	34
Fixed Investment	57						36
Foreign Assets	-22	-59	14				-22
Total Assets	35	-2	71				15
Total Assets and Inventories	-29			8	-65	-65	-30

Only changes with respect to adopted case (Column A) are shown.

A: Same assumptions as in Table 17, namely propensity to import (32 percent), private consumption (70 percent), government consumption (16 percent), and fixed investment (22 percent).

B: As in A, except propensity to import at 30 percent.

C: As in A, except propensity to import at 34 percent.

D: As in A, except private consumption propensity at 72 percent.

E: As in A, except private consumption propensity at 68 percent.

F: As in A, except government consumption propensity at 14 percent.

G: As in A, except propensity to invest at 23.149 percent.

If, on the other hand, it is assumed that in the absence of the boom, access to foreign savings would still have been fairly high, a 34 percent ratio of imports to GDP would have been possible.[51] In this opposite case, windfall imports would have been less (Column C in Table 18), since high imports would have happened anyway, and over the period there would have been an accumulation of foreign assets of 14 percent of windfall income, suggesting a very high propensity to save.

In the credible range for the imports to the GDP ratio, therefore, windfall imports were somewhere between 80 and 150 percent of the estimated export and real income windfalls, thus increasing aggregate supply to a similar extent. At the same time, the boom would have led to somewhere between an accumulation of foreign assets of 800 million colones (if import windfall lower than export windfall), and the addition of 3,200 million colones to the country's external debt. The range of credible foreign asset accumulation windfalls would go from 15 percent of windfall income, with high savings rates, to an extra debt of 60 percent of windfall income, in the case of liability accumulation. This last outcome would increase aggregate supply by 160 percent and domestic demand by 136 percent of windfall income. For most of the acceptable ranges for the proportions of imports, foreign asset accumulation, and total savings, with respect to windfall income, given alternative counterfactual imports to the GDP ratios, positive savings are predicted.

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[51] This implies a current account deficit of 9 to 12 percent of the GDP.

Figure 6
Costa Rica: Windfall Private Consumption, Windfall Government Consumption, and Windfall Savings, 1975-1980

If the conterfactual private consumption to the GDP ratio is set at 72 rather than 70 percent, one obtains negative windfalls for every year, an unlikely outcome, as shown in Column D, Table 18. With a lower counterfactual propensity to consume (68 percent), private consumption windfalls are positive every year, amounting to 36 percent of the real income windfall over the period. This outcome would have required, however, substantial inventory drawdowns, again not a very likely event. This suggests as more likely an intermediate situation, with a positive but very small consumption windfall.

Similarly, decreasing the assumed government consumption to the GDP ratio, from 16 to 14 percent, doubles the corresponding windfall to over 4,000 million (Column F), but

this would also have required substantial inventory reductions. A higher ratio (18 percent), on the other hand, results in negative government consumption windfalls during some years, which is not credible. Thus, government consumption windfalls appear to have been substantial, of the order of one to two-thirds of the income windfall.

Because of its impact on GDP windfalls, the assumption about the propensity to invest had more widespread implications. Under the assumption of a ratio of 23.149 percent, as in Table 12, (instead of 22 percent), GDP windfalls decline slightly, and the fixed investment windfall is cut by one-third, to 36 rather than 57 percent of windfall income. Again, these simulations suggest that windfall investment was substantial, amounting at least to one and most likely to to two-thirds of windfall income. In turn, the corresponding total savings windfall would have been, from minimal to over one-third of windfall income, depending on the assumptions.[52]

Such an increase in savings was extraordinary, by historical standards. Costa Rica's domestic savings effort has not been impressive. Although the reasons for this are not well established, there are indications of a strong substitution effect due to ample access to foreign savings. There is also evidence of a dampening impact on savings of the expanded social security system and of the enlargement of the bureaucratic middle classes. There has been, on the other hand, a strong investment in health and education, that is not recognized as domestic savings in the National Income accounts. If at least a portion of these expenses in human capital formation were added to the savings and investment flows, the resulting totals would look high.

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[52] These results ignore the evolution of inventories.

Net domestic savings declined from about 9 percent of the disposable national income, in the 1950s and early 1960s, to about 6 percent in the late 1960s and early 1970s. This ratio increased during the second half of the 1970s, to a peak of 13 percent in 1977, at the time of the coffee boom. This reinforces the claim of significant savings windfalls. As already discussed, however, most of the increased savings took place early in the period, with asset accumulation turning negative towards the end of the decade.

Moreover, while private consumption hardly increased (and may have been less than otherwise), government consumption windfalls were substantial. This suggests a very high propensity to save in the case of the private sector, as predicted for transitory income increases, and a very high propensity to consume of the public sector, which thus behaved *as if* the increase in real income was permanent. This behavior, explained mostly by political economy pressures to be discussed below, led to unsustainable government expenditure levels and to the fiscal crisis of the early 1980s, when windfall income disappeared. That is, private agents behaved as expected of rational decisionmakers, given the information available about the *temporary* nature of the trade shock, and their behavior not only was not destabilizing, but would as well have induced increased economic growth, if savings were profitably invested. The government, on the other hand, ignored the temporariness of the shock and, in doing so, brought about macroeconomic instability in the early 1980s. The large portion of the public sector windfall spent in consumption was not conducive, either, to future economic growth.

3.5 Investment Windfalls

In order to obtain *observed* values for the components of gross fixed capital formation (private and public sector investment, tradable and non-tradable capital goods), the observed ratios to the GDP, in current prices, were multiplied by annual real income values. Counterfactuals were computed by assuming a share of private investment of 68 percent of the total, and a share of tradable capital goods of 48 percent.[53] Windfalls are reported in Table 19.

While the propensity to invest was high in 1976, windfall income was modest and, thereby, windfall investment amounted only to 430 million colones. By 1979 and 1980, on the other hand, high propensities resulted in substantially more investment. Almost 60 percent of windfall fixed capital formation was undertaken by the public sector, compared to a historical share of 25 percent. The public sector investment windfall was larger than the private sector windfall in the earlier stages of the boom (1976 and 1977) as well as in 1980, when the boom was almost over. Most of the private sector windfall investment came, on the other hand, in 1978 and 1979, after a two-year lag, while the private sector was crowded out in 1980, as the economy's budget constraint became much more binding. Again, private agents behaved as expected, postponing investment from one to two years, in order to obtain a higher rate of return, while the public sector invested immediately after the onset of the boom, using the resulting windfall, and with the proceeds from accelerated foreign borrowing, towards the end of the period, as shown in Figure 7.

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[53] A higher ratio for private investment would lead to a negative windfall, which is not acceptable.

Table 19
Costa Rica: Private and Public Investment Windfalls and Tradable and Non-Tradable Capital Windfalls, 1976-1980

	1976	1977	1978	1979	1980
Observed Shares of Investment:[a/]					
Private	64.3	63.5	67.7	66.0	61.3
Public	35.8	36.5	32.3	34.0	38.7
Tradable	47.3	50.0	52.0	47.8	42.6
Non-Tradable	52.7	50.0	48.0	52.2	57.4
Windfalls:					
Total Investment:[b/]	430.	452	496	1,119	632
Private[c/]	130	98	321	646	72
Public[d/]	300	354	175	473	560
Share (%)	69.8	78.3	35.3	42.3	88.6
Tradables[e/]	177	312	439	523	16
Non-Tradables[f/]	252	140	57	596	616
Share (%)	58.6	31.0	11.5	53.3	97.5
Expenditures:[g/]					
Private	-24	290	671	558	-274
Public	418	623	544	1,068	1,209
Share (%)	106.1	68.2	44.8	65.7	129.3
As a Proportion (%) of Income Windfall:					
Investment	58	24	38	123	67
Private	17	5	24	71	8
Public	40	19	13	52	60
Tradables	24	17	33	58	2
Non-Tradables	34	7	4	66	66

[a/] Observed proportions of total investment, in current prices.
[b/] From Table 16.
[c/] Assuming a counterfactual share of 68 percent.
[d/] Assuming a counterfactual share of 32 percent.
[e/] Assuming a counterfactual share of 48 percent.
[f/] Assuming a counterfactual share of 52 percent.
[g/] Adding consumption and investment.

Figure 7
Costa Rica: Windfall Private and Public Investment, 1975-1980

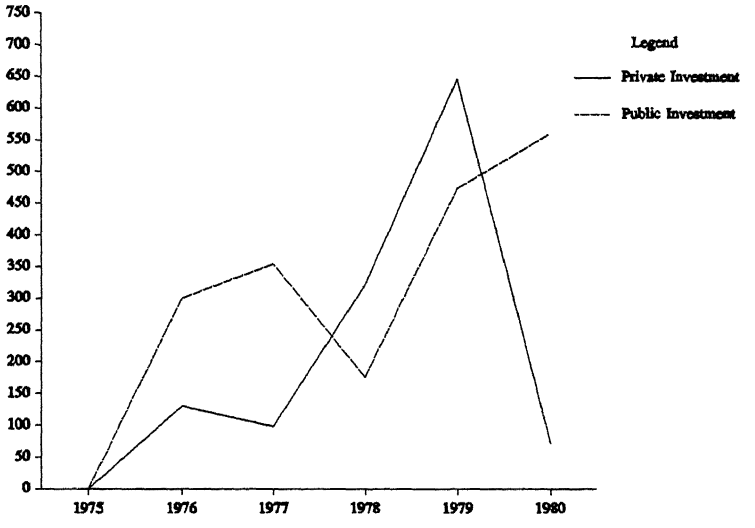
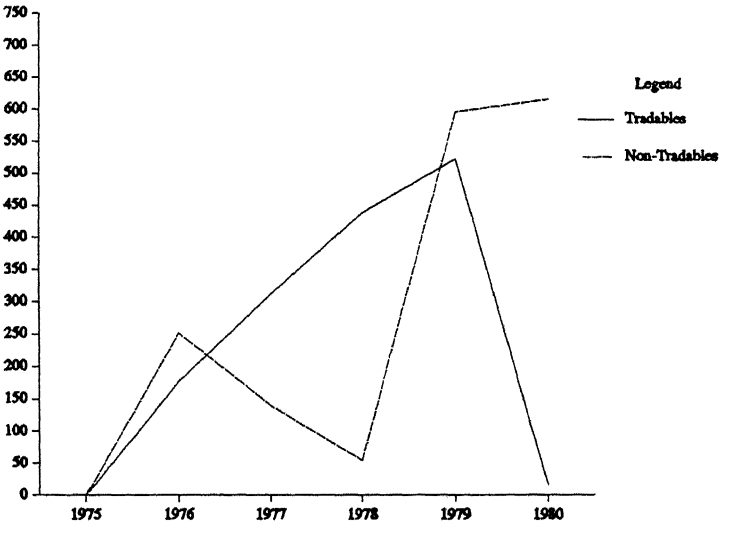


Figure 8
Costa Rica: Windfall Tradable and Non-Tradable Capital Formation, 1975-1980



The larger share (53 percent) of non-tradable capital (buildings and other construction) in the investment windfall reflected the predominance of the public sector investment windfall. Following closely the time path of the public investment windfall, most of this non-tradable investment took place towards the end of the period, as shown in Figure 8, and was mostly financed with foreign borrowing. Tradable capital formation (machinery and equipment) accounted for 47 percent of the investment windfall and was mostly associated with private capital formation. The increase in tradable capital formation was reflected in an increase in the relative importance of capital goods in total imports, from 26 percent in 1975 (which followed the low 23 percent share of 1974), to 32 percent in 1979. As a result, in real terms the proportion of capital goods imports to the GDP increased from 9 percent in 1975 to 15 percent in 1979 (compared to an average of 7.4 percent for 1957-1972).

If private capital formation is added to private consumption and public capital formation to public consumption, the channels for the utilization of windfall income are identified. About three-quarters of windfall income were spent by the public sector, both in its current and capital accounts. That is, while private sector consumption hardly increased, both public consumption and investment attracted the lion's share of the windfall income and the utilization of these exceptional resources was the result of mostly bureaucratic decisions. The social profitability of the chosen uses of resources appears to have been very low and not conducive to stability and growth.

3.6 Financial Windfalls

As a consequence of exchange rate stability and very low rates of domestic inflation, as well as of the relatively high rates of income growth, during the 1960s and most of the 1970s Costa Rica experienced a significant degree of financial deepening. The ratio of the money supply in the broad sense of currency, and demand, savings, and time deposits (M2), with respect to the GDP, increased from 20 percent in the late 1950s, to 30 percent in the mid-1970s. Most of this process reflected the accumulation of non-monetary assets (quasi-money).

The increased real incomes of the coffee boom sharply augmented the demand for money and other financial assets. The same procedure employed so far was used to compute *observed* and counterfactual monetary balances. To estimate counterfactual money holdings, the trends for the ratios of money in a strict sense (M1), quasi-money, and money balances in a broad sense (M2), all with respect to the GDP, were estimated by using regression analysis, and values for 1975 were forcasted and then held constant during the boom period. These ratios were 31 percent for total liquidity (M2), 18.6 percent for money (M1), and 12.4 percent for quasimoney. Windfall money holdings were then estimated as the difference between observed and counterfactual values, as shown in Table 20.

The accumulation of windfall domestic financial assets during the boom was very substantial, as shown in Figure 9. The total liquidity windfall amounted to 11,630 million (over two times the export windfall). While there was a stagnant demand for money in the narrow sense (or even a slight decline, particularly towards the end of the period, as inflation accelerated), most of this accumulation of financial assets took the form of quasi-

money, that is, interest-bearing deposits in both domestic and foreign currency. This suggests that these money balances were accumulated for store of value rather than for transaction purposes and were one mechanism used by the private sector to postpone either consumption or investment until a later date.

Table 20
Costa Rica: Money, Credit, and Fiscal Windfalls, 1975-1980

	1975	1976	1977	1978	1979	1980
Observed ratios with respect to the GDP (%):[a/]						
Total Liquidity (M2)	33	36	37	42	44	42
Money (M1)	17	18	18	19	18	17
Quasimoney	16	18	19	23	26	25
Domestic Credit	37	37	36	40	79	51
Private Sector	30	29	27	29	31	29
Public Sector	7	7	9	11	18	22
Central Government						
Tax Revenues	12	12	12	13	12	11
Expenditures	18	19	18	20	21	22
Deficit	5	7	5	7	9	11
Windfalls:						
Total Liquidity (M2)[b/]	0	1,151	1,798	2,713	3,113	2,855
Money (M1)[c/]	0	-2	130	264	3	-150
Quasimoney[d/]	0	1,153	1,669	2,449	3,110	3,004
Domestic Credit[e/]	0	699	1,017	1,778	3,565	3,974
Private Sector[f/]	0	465	340	665	872	510
Public Sector[g/]	0	235	677	1,113	2,693	3,464
Central Government						
Tax Revenues[h/]	0	78	24	246	-24	-87
Expenditures[i/]	0	466	365	688	849	1,133
Deficit	0	388	81	443	873	1,219

a/ Ratios of financial magnitudes (stocks outstanding at the end of the year) with respect to the GDP, in current prices.
b/ On the assumption of a counterfactual total liquidity to GDP ratio of 31 percent.
c/ On the assumption of a counterfactual money to GDP ratio of 18.6 percent.
d/ On the assumption of a counterfactual quasi-money to GDP ratio of 12.4 percent.
e/ On the assumption of a counterfactual domestic credit to GDP ratio of 34.4 percent.
f/ On the assumption of a counterfactual credit for the private sector to GDP ratio of 28 percent.
g/ On the assumption of a counterfactual credit for the public sector to GDP ratio of 6.4 percent.
h/ On the assumption of a counterfactual tax revenues to GDP ratio of 12.2 percent.
i/ On the assumption of a counterfactual government expenditures to GDP ratio of 17.5 percent.

Figure 9
Costa Rica: Windfall Total Liquidity (M2), Money Balances (M1), and Quasimoney, 1975-1980

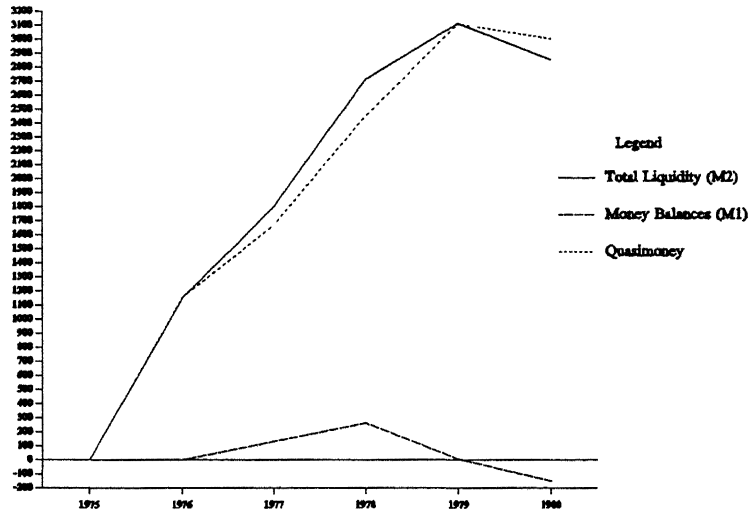
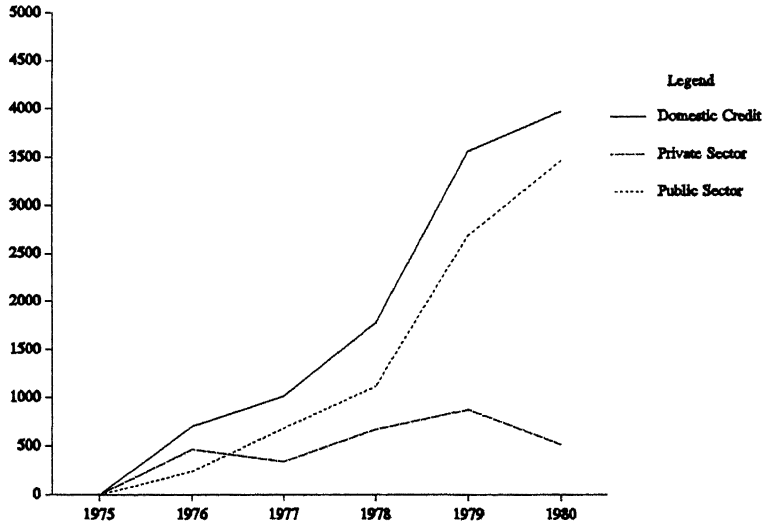


Figure 10
Costa Rica: Windfall Domestic Credit and Windfall Credit for the Private and for the Public Sectors, 1975-1980



A similar procedure was employed to compute observed values, counterfactuals, and windfalls for bank credit aggregates. The trends for the ratios of total domestic credit and of credit for the private and the public sectors, all with respect to the GDP, were estimated by using regression analysis, and values for 1975 were forcasted and then held constant during the boom period. These ratios were 34.4 percent for total domestic credit, 28 percent for private sector credit, and 6.4 percent for public sector credit. Windfall credit was then computed as the difference between observed and counterfactual values, as shown in Table 20.

A domestic bank credit windfall, closely following the money demand windfall, was observed, as shown in Figure 10. In 1980, however, although the demand for money declined, domestic credit continued to increase, on the basis of foreign savings. For the boom period, the estimated domestic credit windfall amounted to 11,035 million (about two times the income windfall). While in the past the private sector had received about 85 percent of total domestic credit, this situation changed entirely with the boom. In effect, the private sector received about one-quarter of windfall domestic credit, while the public sector enjoyed access to increasing shares of total credit. It was through this privileged access to credit that the public sector was able to finance windfall expenditures well above windfall tax revenues, as well as a proliferation of state-owned enterprises (CODESA). This abuse of the fiscal function of the banking system eventually led to financial repression, to inflation, and to the contraction of the financial system in real terms towards the end of the decade. The substantial accumulation of windfall money balances by the private sector did

not result, therefore, in increased credit for this sector, but it rather helped finance the expansion of both public sector consumption and investment.[54]

The evolution of the financial system's portfolio during the boom thus corroborates the emerging story. In the presence of temporarily increased incomes, private agents saved most of the windfall, partly in the form of foreign assets, but mostly as domestic financial assets. Eventually, some of these savings were transformed into private investment. A large portion was transferred, however, to the public sector, through an increasing share of the government in domestic credit balances and, by 1980, through the inflation tax, which eroded a substantial portion of the purchasing power accumulated by the private sector in the form of financial assets. Potentially postponed private investment thus never materialized, as private savings were shifted towards the financing of public sector current and capital account expenditures. Both uses generated low social returns in terms of future growth opportunities.

3.7 Fiscal Windfalls

Information about public sector revenues and expenditures is, unfortunately, not available as needed for a reasonable construction of counterfactuals. In order to obtain a first approximation to the impact of the coffee boom on the public sector, counterfactuals

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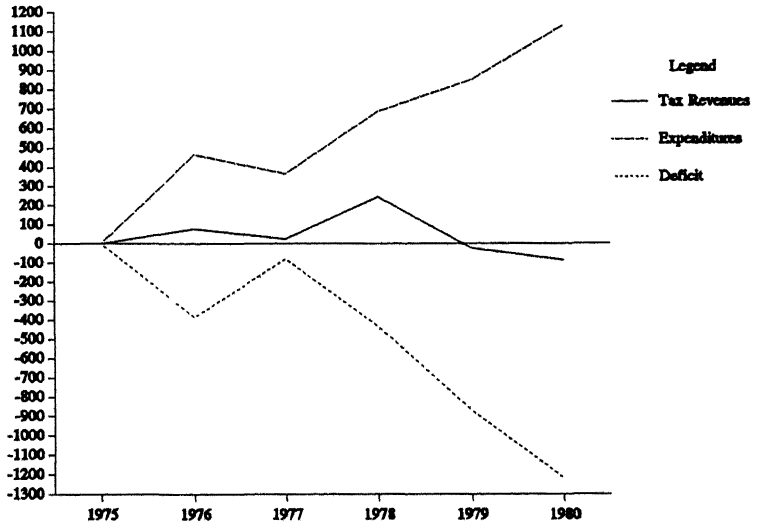
[54] In addition, windfall financial deepening also financed, in the early 1980s, massive implicit (both credit and foreign exchange) subsidies granted through the Central Bank. The resulting losses for the monetary authority became the main source of macroeconomic instability.

and windfalls were estimated for the Central Government tax revenues and total expenditures, following the same procedure used for other macroeconomic aggregates.[55]

A comparatively small tax revenue windfall resulted from the boom. Over the five-year period, a tax windfall, that amounted to 497 million, was equivalent to 9 percent of the income windfall, compared to a ratio of tax revenues to the GDP of 12 percent observed before the boom. The ratio of windfall tax revenues to windfall income actually increased from 10.5 percent in 1976 to 16.6 percent in 1977, and 19.8 percent in 1978, but then drastically declined. Overall, and every single year, windfall tax revenues were, nevertheless, much less than the extraordinary expansion of Central Government expenditures, as shown in Figure 11.

Figure 11
Costa Rica: Windfall Central Government Tax Revenues, Expenditures, and Deficit, 1975-1980



[55] The Central Government includes the Executive, Legislative, and Judiciary branches. It accounted for less than one-half of the public sector budget.

Indeed, while the tax revenue windfall was equivalent to 9 percent of the real income windfall, the Central Government expenditures windfall amounted to 64 percent of the income windfall. This last proportion was comparatively low only in 1977 (21 percent). In 1976 and 1978 it was over one-half, while in 1979 and 1980 the Government expenditures windfall was higher than the real income windfall. Historically, however, Central Government expenditures had been equal to about 17.5 percent of the GDP.

With windfall expenditures much higher than windfall revenues, the coffee-cum-debt boom caused the Central Government to generate an increasing windfall deficit. Over the five-year period, this deficit was equivalent to 55 percent of the windfall income. This, in contrast with historic pre-boom deficits of less than 3 percent of the GDP, implies an extraordinary expansion of the public sector. Only in 1977 was the windfall deficit similar to observed pre-boom ratios of the Central Government deficit to the GDP. Moreover, this deficit surpassed the real income windfall in 1979 and 1980.

The Central Government budget represented, furthermore, less than one-half of the total public sector expenditures. The decentralized agencies and government enterprises expanded rapidly during this period, as well. The resulting public sector deficit was financed with both domestic credit and foreign borrowing. The windfall associated with domestic credit for the public sector, equivalent to one-and-a-half times the real income windfall, provides an indication of the magnitude of this expansion, that was financed, in addition, by accelerating borrowing abroad.

IV. Dutch Disease and Construction Booms

4.1 Changes in the Pattern of Production

The prosperity of the second-half of the 1970s was interpreted by Costa Ricans in part as a temporary shock and, in part, as a permanent improvement of their real incomes. Ample access to international financial markets and the expansive behavior of the public sector reinforced the latter perception. There was a consensus, however, that in addition to any of these permanent effects, the country was also enjoying a substantial temporary windfall from the coffee boom.

Permanent gains in real incomes are expected to increase domestic demand for non-tradable goods, raising their relative price, since the price of tradables is given under the small country assumption. This should induce a shift of resources towards the non-tradable production sector. Temporary windfall income, on the other hand, may lead to a rise in the demand of non-tradable capital goods, resulting in a construction boom.[56] The comparatively small increase in private consumption and the high marginal propensities to save out of the export windfall observed in Costa Rica suggest that private economic agents perceived the boom mostly as a temporary increase in current incomes. The consequences of their behavior were compensated, however, by the decisions of the public sector. This section explores the changes in the structure of production that took place during the boom, while another section examines the evolution of relative prices during the period, in order to identify the presence and magnitude of these effects.

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[56] See D. L. Bevan, P. Collier, and J. W. Gunning, "Consequences of a Commodity Boom in a Controlled Economy: Accumulation and Redistribution in Kenya 1975-83," The World Bank Economic Review, Vol. 1, No. 3, May, 1987, pp. 489-513.

The rates of growth of the GDP increased up to 1977, to a peak of 8.9 percent, and subsequently declined. Output stagnated in 1980. The average rate of growth for 1975-1980 was 5.3 percent per year, lower than in earlier periods, despite the boom. The production of non-tradables grew more rapidly, at an average rate of 6.1 percent, compared to 4.0 percent for the production of tradables, as shown in Figure 12.[57] If coffee is subtracted from the tradables sector, the average rate of growth was 3.9 percent per annum.

Within the tradables sector, manufacturing was more dynamic than agriculture, as shown in Table 21, possibly as a consequence of the Central American trade boom induced by high coffee prices everywhere in the Common Market. To some extent, given high degrees of protection, these commodities may be treated as partially non-tradables, at the regional level. In this sense, their production was expanded at the expense of exports beyond the CACM.

Besides coffee, other traditional agricultural exports (bananas, sugar, and beef) did very poorly, suggesting the possibility of a Dutch disease effect, through the overvaluation of the domestic currency, which became substantial towards the end of the period. By 1981, however, sufficient devaluation may have contributed to the swift recuperation of these traditional exports. These traditional exports were influenced, in addition, by exogenous shocks of their own. Agriculture for domestic consumption, on the other hand, which in several ways is more a non-tradable sector (perishable vegetables and fruits, basic grain

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[57] In the absence of data about tradable and non-tradable production, the former has been proxied by the value added by agriculture and manufacturing, while the latter has been represented by all other components of the GDP. This assumption is justified by the high degree of openness of the Costa Rican economy.

production protected by import quotas) grew briskly, stimulated by the growth of domestic demand. All of these production developments would be compatible with Dutch disease predictions for a permanent shock.

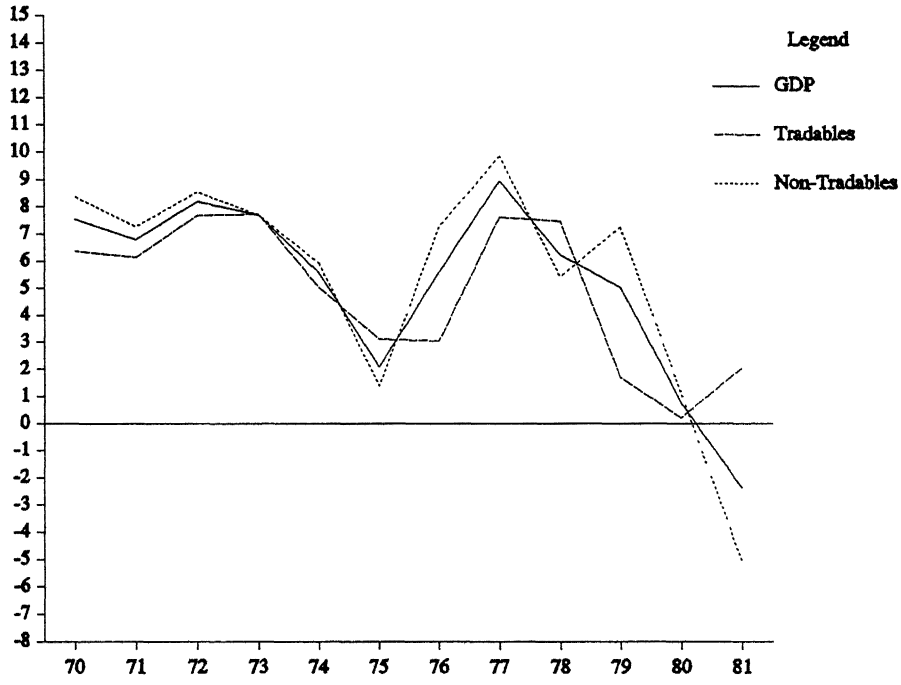
Table 21
Costa Rica: Real Rates of Growth of Value Added in Several Productive Sectors. 1975-1981

	1975	1976	1977	1978	1979	1980	1981
Gross Domestic Product	2.1	5.6	8.9	6.2	5.0	0.8	-2.3
1. Tradeable goods[a/]	3.1	3.2	7.6	7.5	1.7	0.2	2.0
1.1 Agriculture	3.0	0.5	2.2	6.6	0.5	-0.5	5.1
1.2 Coffee	-8.2	-4.0	6.6	13.0	0.1	7.9	6.3
1.3 Agriculture without coffee	6.4	1.7	1.1	5.0	0.6	-2.8	4.7
1.4 Other traditional exports[b/]	3.3	-2.9	-0.3	6.1	-3.4	-7.3	8.8
1.5 Other agriculture	10.8	7.6	2.8	3.6	5.4	2.0	0.7
1.6 Manufacturing	3.2	5.8	12.7	8.2	2.7	0.8	-0.5
2. Tradables without coffee	4.6	4.0	7.7	6.9	1.8	-0.6	1.5
3. Non-tradables	1.4	7.3	9.8	5.4	7.3	1.1	-5.1
3.1 Construction	5.7	20.8	3.9	5.8	19.3	-1.1	-21.7

[a/] Tradables are proxied by agriculture and manufacturing.
[b/] Bananas, sugar, and beef.
Source: Banco Central de Costa Rica, several publications.

The construction sector experienced two bursts of extremely rapid growth, in 1976 and in 1979, indicating the presence of short-lived construction booms, as well. While the 1976 construction boom can be clearly associated with the coffee boom, the 1979 construction boom is more closely associated with the debt boom. In both cases (particularly in 1979), the expansion of construction was mostly associated with public sector investment. After 1980, when access to foreign borrowing began to be curtailed, construction activity sharply declined.

Figure 12
Costa Rica: Real Rates of Growth of Tradable and Non-Tradable Production. 1970-1981. (Percentages)



As a consequence of these differential rates of growth, the share of tradable production in the GDP (in nominal terms) declined from 41 to 36 percent during the period, as shown in Table 22. If coffee is excluded, the share of tradables declined from 38 to 32 percent, a substantial drop over five years, with most of the reduction taking place towards the end of the period when, in addition to the boom, ample access to foreign borrowing allowed the growing overvaluation of the colon, which would be followed by a massive devaluation in 1981. The share of other traditional export crops (bananas, sugar, and beef) lost three percentage points, from 10 to 7 percent, as a result of their sluggish expansion.

Table 22
Costa Rica: Shares in Value Added of Several Productive Sectors in Current Prices. 1975-1981.

	1975	1976	1977	1978	1979	1980	1981
1. Tradable goods[a/]	40.7	40.1	40.9	39.1	36.8	36.4	42.0
1.1 Agriculture	20.3	20.4	21.9	20.4	18.5	17.8	23.0
1.2 Coffee	2.6	4.7	8.3	6.1	4.5	4.5	5.4
1.3 Agriculture without coffee	17.7	15.7	13.6	14.3	14.0	13.3	17.6
1.4 Other traditional exports[b/]	9.6	7.8	6.7	7.1	7.1	6.6	10.9
1.5 Other agriculture	8.1	7.9	7.0	7.2	6.9	6.8	6.7
1.6 Manufacturing	20.4	19.7	19.0	18.7	18.3	18.6	18.9
2. Tradables without coffee	38.1	35.4	32.6	33.0	32.3	31.9	36.6
3. Non-tradables	59.3	59.9	59.7	60.9	63.2	63.6	58.0
3.1 Construction	5.2	5.8	5.2	5.5	6.4	6.2	5.2

[a/] Tradables are proxied by agriculture and manufacturing.
[b/] Bananas, sugar, and beef.
Source: Banco Central de Costa Rica, several publications.

Manufacturing lost almost two percentage points of its share in the GDP, not much compared to what happened to the share of agriculture without coffee, which lost more than four points. The share of non-tradable production increased, on the other hand, from 59 to 64 percent of the GDP. Given its comparatively small size, despite the enourmous rates of growth of 1976 and 1979, the share of construction at most reached 6.4 percent in 1979 and it gained only one percentage point throughout the period. With the devaluation and fiscal crisis of 1981, these shares experienced dramatic reversals.

In real terms, the share of tradables in the GDP declined from 41 to 38 percent, by two-and-a-half rather than five percentage points, as was the case with the nominal share. This difference was a reflection of the deterioration of the domestic terms-of-trade of the tradable sector. The share of coffee remained fairly constant, while the share of tradables

without coffee declined from 38 to 36 percent. The share of agriculture without coffee declined from 18 to 15 percent. The share of non-tradable production, on the other hand, increased from 59 to 62 percent, reflecting both a resource movement effect as well as an improvement in the domestic terms of trade of the non-tradable sectors.

4.2 Employment and Real Wages

The expansion of economic activity induced by the coffee boom accelerated the rate of growth of employment and rapidly increased real wages. From June, 1975 to June, 1980 total employment increased at an average annual rate of 6.6 percent. As a result, 43,606 more persons had been added to an employed labor force of 440,942 by 1980, compared to the 397,336 that would have been employed if the number of jobs would have grown at the 1975 rate of 4.4 percent per year (which was already high by historical standards). The annual rates of growth of employment, shown in Table 23, were particularly high in 1976 and in 1977, and were below historic averages only in 1980, when the fiscal crisis triggered a contraction of new job opportunities.

On the average, employment increased more rapidly in the non-tradable sectors, at a rate of 7.4 percent per year (June to June), compared to 5.3 percent for employment in the tradable sectors. This is consistent with the more rapid expansion of non-tradable production. This difference in the growth of employment was particularly noticeable in 1979, when employment in both construction and services exploded, but hardly grew in agriculture. The impact of the coffee boom itself had been reflected in very rapid growth of employment in agriculture in late 1976 and early 1977.

Table 23
Costa Rica: Annual Rates of Growth of Employment, by Sector of Activity. June and December, 1975-1980.

	1975	1976	1977	1978	1979	1980
Total Employment						
June[a/]	4.4	6.2	10.2	6.3	7.0	3.3
December[a/]	6.1	8.6	7.7	5.1	8.0	-0.4
Tradables[b/]						
June	3.2	5.4	10.4	5.3	3.7	2.1
December	2.6	10.5	5.6	3.9	3.6	2.6
Agriculture						
June	2.5	-1.4	14.4	2.3	1.1	3.4
December	-0.5	11.8	3.3	1.9	1.6	5.4
Manufacturing						
June	3.8	10.9	7.5	7.5	5.6	1.2
December	4.9	9.5	7.2	5.3	4.9	0.7
Non-Tradables						
June	5.2	6.7	10.1	7.1	9.1	4.1
December	8.4	7.4	9.1	5.8	10.7	-2.0
Construction						
June	-3.1	-3.9	4.1	9.9	14.2	-4.2
December	0.1	3.8	13.4	2.8	9.5	-11.1
Other Non-Tradables						
June	6.5	8.2	10.9	6.7	8.5	5.2
December	9.4	7.8	8.6	6.2	10.9	-1.1
Private Sector						
June	3.4	3.6	10.6	7.6	4.6	2.3
December	2.7	6.6	10.3	4.3	4.7	1.4
Public Sector						
June	6.7	12.0	9.4	3.7	12.0	5.5
December	13.7	12.5	2.8	6.6	14.6	-3.5

[a/] June to June; December to December.
[b/] Agriculture and Manufacturing.
Source: Academia de Centroamerica.

For the whole period, however, employment in agriculture grew only 3.8 percent per year, potentially in reflection of Dutch Disease effects towards the end of the boom period. Employment in manufacturing grew at an average rate of 6.5 percent per year (close to the aggregate average), reflecting the influence of tariff protection as well as the expansion of CACM trade during the boom. This impact was particularly important in 1976.

On the aggregate, employment in construction grew only 3.7 percent per year. This was the result, however, of exceptionally high rates of growth of construction employment from 1977 to 1979, preceeded and followed by reductions in the number of jobs. Rather than a sustained expansion, employment experienced bursts concentrated around construction booms. This contrasted with the exceptionally high growth of employment in other non-tradable sectors (services), at an average rate of 7.9 percent per year. This essentially reflected the expansion of the public setor, mostly in the autonomous institutions. While private sector employment increased 5.7 percent per year, public sector jobs augmented 8.5 percent annually. This growth of public sector employment was one of the implicit policies to keep unemployment low, particularly in he case of qualified and professional workers, in the presence of commercial and factor price policies that reduced incentives to hire in the modern private sectors.

Growing public sector employment reflected, as well, the increasing intervention of the state in the economy and the accumulation of entitlements to public services. Boosted by the coffee boom, this expansion of the public sector was not sustainable in the long run and was at the roots of the fiscal disequilibria of the early 1980s. Moreover, given the importance of wages in total public sector expenditures, it became politically difficult to

reduce government spending once the boom was over. The concentration of workers in large public institutions allowed their unionization. These unions blocked, in turn, any attempts at fiscal austerity.

Table 24
Costa Rica: Annual Rates of Change of Average Real Wages, by Sector of Activity. June and December, 1975-1980.

	1975	1976	1977	1978	1979	1980
Total Employment						
June[a/]	-2.9	4.1	11.4	8.6	5.6	-2.2
December[a/]	1.7	11.8	9.8	6.5	3.8	-0.4
Tradables[b/]						
June	-6.1	7.5	11.7	8.4	6.1	-2.0
December	-0.3	15.1	6.5	6.3	6.2	3.4
Agriculture						
June	-4.3	6.6	21.8	9.9	10.0	-5.1
December	-1.4	29.2	6.1	7.3	7.5	9.4
Manufacturing						
June	-7.2	5.6	8.2	6.9	3.7	-0.2
December	-0.1	7.2	7.8	5.0	5.0	1.0
Non-Tradables						
June	-1.7	2.4	11.3	8.4	4.8	-2.6
December	2.2	10.3	11.2	6.4	2.2	-2.1
Construction						
June	-1.8	5.3	11.2	6.4	6.3	1.9
December	4.9	15.6	22.3	2.9	1.1	-7.3
Other Non-Tradables						
June	-2.2	1.7	11.1	8.7	4.9	-3.3
December	1.4	9.2	10.2	6.8	2.5	-2.2
Private Sector						
June	-7.1	4.7	10.1	8.5	5.5	-2.7
December	-2.4	11.3	11.9	3.5	5.2	-1.1
Public Sector						
June	1.3	0.8	13.2	10.0	3.3	-2.8
December	5.4	9.4	8.0	11.2	0.1	-0.7

[a/] June to June; December to December.
[b/] Agriculture and Manufacturing.
Source: Academia de Centroamerica.

As a result of these differential rates of growth of employment, from 1975 to 1980 (June to June) the share of jobs in tradables production dropped from 39.9 to 37.6 percent, while the share of the non-tradable sectors in total employment increased from 60.1 to 62.4 percent. In turn, the share of private sector employment dropped from 69.2 to 66.4 percent and the share of public sector employment increased from 30.8 to 33.7 percent during the same period. The share of private sector workers in the total wage bill diminished from 52.9 percent in 1975 to 50.2 percent in 1980, despite the more rapid growth of private sector wages.

The boom was accompanied in general by a rapid growth of real wages, at an average rate of 7.9 percent per year from December 1975 to December 1979, followed by a slight decline in 1980, as inflation accelerated with the fiscal crisis. The increases were exceptional in 1976 and 1977 (over 11 percent), as shown in Table 24. The impact of the boom on agricultural wages is evident. For 1975-1979 (December to December), real agricultural wages grew 12.1 percent per year. The increase was almost 30 percent in 1976 (December to December) and 22 percent in 1977 (June to June). As a result, the ratio of agricultural wages to the economy's average wage augmented from 53 percent in 1975 to 63 percent in 1979. Real wages in manufacturing augmented, on the other hand, 6.2 percent per year, still a significant increase. The construction boom resulted in a 10.1 percent annual increase in real wages in this other sector. These increases were exceptional in 1976 (16 percent) and 1977 (22 percent). Average wages in the service sector increased 7.1 percent per year, a less dramatic but sill substantial increase. In summary, although the coffee windfall was first received by a sub-sector of agriculture, its consequences resulted in major real wage

increases throughout the economy. The weight of agriculture resulted in real wages increasing 8.5 percent per year in tradable activities, compared to 7.4 percent in non-tradables production. Wages increased more rapidly in the private sector (7.9 percent) than in the public sector (7.1 percent), for the same reason.

4.3 The Domestic Terms of Trade

Both the growth in domestic demand for non-tradable consumer goods and the construction boom, which increased the demand for domestically-produced capital goods, are expected to change relative prices. The evolution of the value added deflators for the various productive sector shown in Table 25 indicates an improvement in the relative price of non-tradable with respect to tradable goods in general.

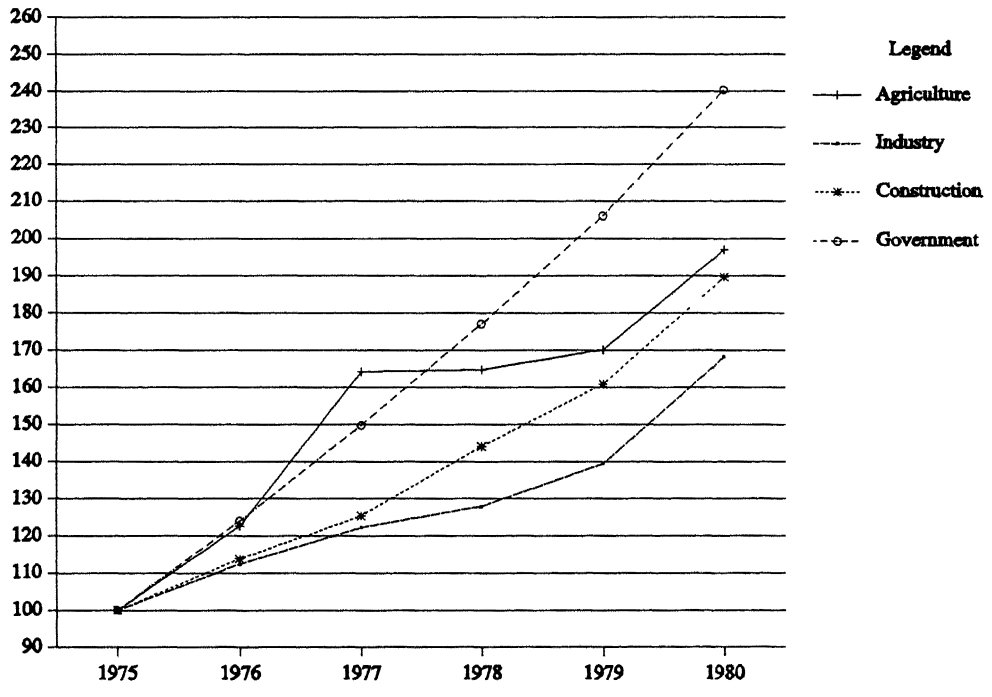
Table 25
Costa Rica: Value Added Deflators for Several Productive Sectors.
1975-1981

	1975	1976	1977	1978	1979	1980	1981
Gross Domestic Product	100	117	136	147	161	191	269
1. Tradable goods[a/]	100	117	142	145	153	181	282
1.1 Agriculture	100	123	164	165	170	197	334
1.2 Coffee	100	229	483	363	307	338	526
1.3 Agriculture without coffee	100	107	117	134	150	175	306
1.4 Other traditional exports[b/]	100	103	112	130	153	182	385
1.5 Other agriculture	100	111	122	139	145	167	227
1.6 Manufacturing	100	112	122	128	139	168	238
2. Tradables without coffee	100	110	120	130	143	170	265
3. Non-Tradables	100	116	133	176	165	196	260
3.1 Construction	100	114	125	144	161	190	278
3.2 Services	100	114	128	148	169	197	254
3.3 General Government	100	124	150	177	206	240	286

[a/] Tradables are proxied by agriculture and manufacturing.
[b/] Bananas, sugar, and beef.

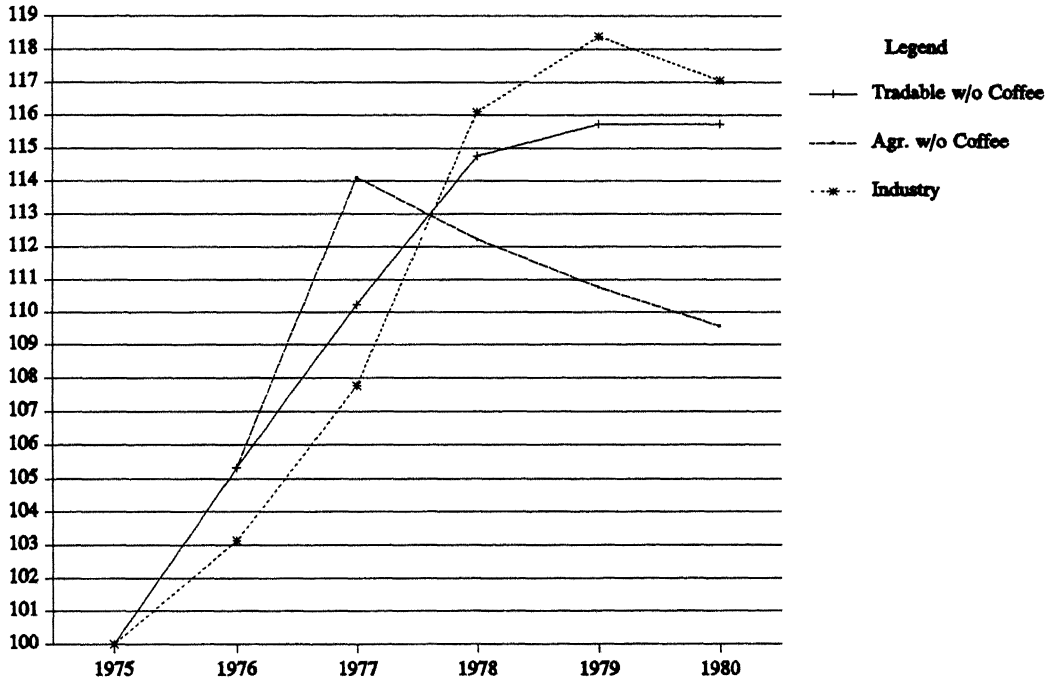
While for the five-year period, the GDP deflator increased 91 percent, the prices of tradables (including coffee) increased 81 percent and the prices of non-tradables increased 96 percent. If coffee is excluded from tradables, the prices of these goods increased only 70 percent. The prices of agricultural goods (excluding coffee) increased 75 percent, while the price of manufactured commodities increased only 68 percent, reflecting, in addition to the Dutch disease effect, an endogenous trade liberalization effect as a consequence of the boom, as shown in Figure 13. The prices of other crops, mostly for domestic consumption, increased the least (67 percent).

Figure 13
Costa Rica: Implicit Deflators of Value Added,
by Sector 1975-1980. (1975:100).



While the relative price of tradables, excluding coffee, with respect to the GDP declined to 89 percent by 1980, the relative price of non-tradables increased to 103, as shown in Table 26. As a consequence, the relative price of non-tradables with respect to tradables, excluding coffee, increased 14 percent throughout the period, as shown in Figure 14.

Figure 14
Costa Rica: Relative Prices of Non-Tradable to Several Classes of Tradable Goods. 1976-1980 (1975:100).



The relative price of non-tradables with respect to agricultural goods (excluding coffee) increased over 9 percent, while the relative price of non-tradables, with respect to manufacturing increased 17 percent. This last effect possibly reflected the endogenous trade

liberalization that took place due to the boom. This also implies that the relative price of agricultural goods, excluding coffee, with respect to manufactures, improved by 7 percent.

Table 26
Costa Rica: Relative Prices of Value Added, for Several Productive Sectors.
1975-1981

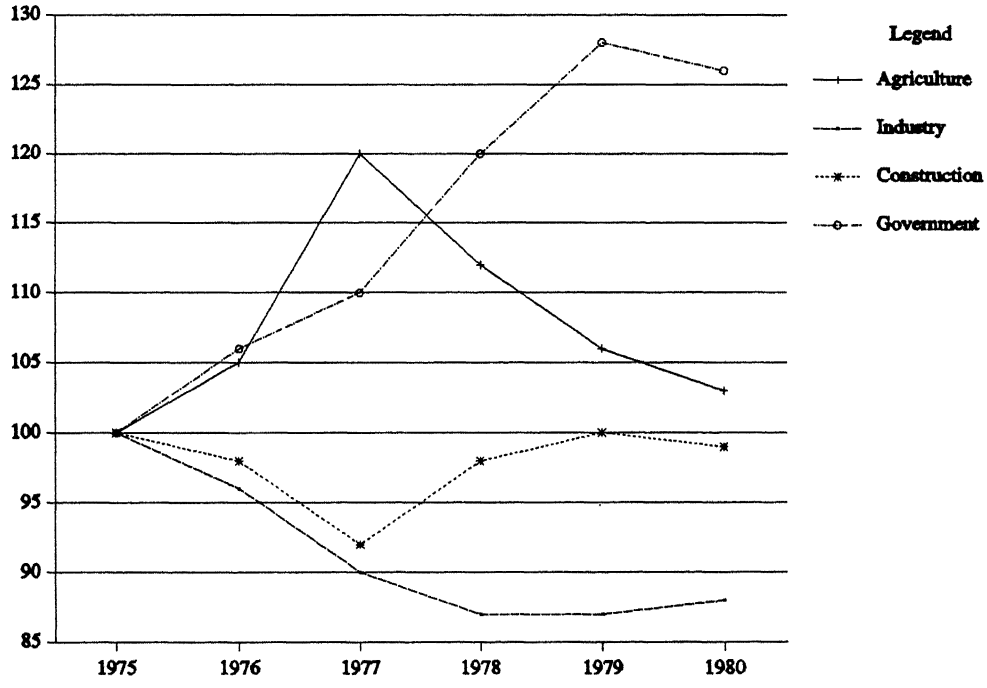
Relative Price with respect to the Gross Domestic Product:	1975	1976	1977	1978	1979	1980	1981
1. Tradable goods[a/]	100	101	104	98	96	95	105
1.1 Agriculture	100	105	120	112	106	103	124
1.2 Coffee	100	197	354	247	191	177	195
1.3 Agriculture without coffee	100	92	86	91	93	92	112
1.4 Other traditional exports[b/]	100	88	82	88	95	96	143
1.5 Other agriculture	100	96	89	94	90	87	84
1.6 Manufacturing	100	96	90	87	87	88	88
2. Tradables without coffee	100	94	88	88	89	89	99
3. Non-tradables	100	99	97	101	103	103	97
3.1 Construction	100	98	92	98	100	99	103
3.2 Personal Services	100	100	98	94	100	105	94
3.3 Government	100	106	110	120	128	126	106

[a/] Tradables are proxied by agriculture and manufacturing.
[b/] Bananas, sugar, and beef.
Source: Banco Central de Costa Rica, several publications.

The evolution of these domestic terms of trade of several sectors of economic activity is reported in Figure 15, where the relative prices of value added by each sector, with respect to the GDP, are represented. The terms of trade of agriculture improved with the coffee shock in 1976 and 1977, to a peak of 120 percent with respect to 1975. Afterwards, these terms of trade deteriorated, as the price of coffee began to drop. The relative price of non-coffee agriculture deteriorated during the first two years of the period, but then slightly improved. This reflected the behavior of the terms of trade of other traditional

export crops, which first sharply deteriorated, as a consequence of Dutch disease effects, but then experienced a partial recovery. The terms of trade of other crops, including both non-export agriculture, first declined but then, as increased incomes augmented the demand for domestic foodstuffs, slightly improved and finally dropped in 1980, in part as a reflection of the fiscal crisis.

Figure 15
Costa Rica: Relative Prices of Value Added, by Sector, with respect to the GDP 1976-1980. (1975:100).



The terms of trade of manufacturing rapidly and steadily declined, as a consequence of induced trade liberalization after the onset of the boom. Import restrictions had been imposed in 1974, in response to the first oil shock. These included temporary surcharges on imports, selective consumption taxes on typically imported commodities, and restrictions on credit terms on the sales of imported durable goods.[58] Beginning in 1976, these temporary import restrictions were progressively reduced.

Windfall incomes were then spent on imports of the restricted commodities, particularly consumer durables. The share of consumer durables in total imports increased from 6.7 percent in 1975 to over 10 percent in 1978 and 1979.[59] The share of non-durable consumer goods increased from 14.1 percent in 1975 to 15.3 percent by 1978 and to 16.1 percent in 1980. Combined, by the end of the period, the shares of imports of consumer goods had gained five percentage points. The resource movement effect was reflected, in turn, by declining shares of imports of raw materials for manufacturing and for agriculture. Combined, these shares declined from 41.2 percent in 1975 to 34.8 percent in 1979. The shares of capital goods for construction and of building materials increased in 1977 and 1978, while the share of capital goods for manufacturing increased in 1979, in reflection of the large investment boom of that year.

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[58] Minimum downpayments, minimum interest rates, and maximum terms to maturity were decreed for sales of consumer durables, most of which are imported.

[59] To the extent that the accumulation of consumer durables may be interpreted as capital accumulation at the household level, a good portion of what has been called the private sector consumption windfall actually represented this form of investment. This suggests that private agents behaved as expected, with their decisions modified by changes in the policy regime.

Surprisingly, the relative price of construction with respect to the GDP slightly declined, to 98 percent of its 1975 level, during the first construction boom in 1976. The reduction was much greater the following year, when this boom was over. This relative price increased back to 100 with the 1979 construction boom. In the non-tradable sector, therefore, the improvement in relative prices was due mostly to an increase in the price of services. The relative price of personal services with respect to the GDP increased 5 percent over the period, with most of the gains towards the end of the decade. The most outstanding change was, however, the increase in the relative price of government services, of 26 percent with respect to the GDP deflator, and of 41 percent with respect to the price of tradables excluding coffee. Since the price of government services is essentially a proxy for general government wages, this indicates that one of the major beneficiaries of the coffee boom and, particularly, of the debt boom were public servants, whose numbers and salaries rapidly increased.

4.4 Construction Booms

Two construction booms were observed during the period under study. The real rate of growth of value added in construction was about 20 percent both in 1976 and in 1979. These two periods coincided with substantial estimated fixed investment windfalls, as shown in Table 16, mostly of the public sector in 1976, after the onset of the boom, and associated with capital formation of both sectors in 1979 due, in part, to the postponement of private sector investment and, in part, to the foreign savings financing of public sector investment in the early stages of the Carazo administration. It is possible that the construction boom

in 1979 might have in part reflected the accumulation of inflation hedges, in anticipation of the major fiscal crisis of the early 1980s.

Construction boom theory predicts that, in these circumstances, a temporary trade shock will not only induce a rise in the price of all classes of non-tradable commodities, relative to tradables, as a consequence of Dutch disease spending and resource movement effects, but also a rise in the relative price of non-tradable capital goods relative to non-tradable consumer goods, in response to the dynamic investment effect of the temporary shock.[60] As already indicated, there is evidence in Costa Rica of increased relative prices of non-tradables with respect to tradables.[61] Beyond this general result, addition conclusions are more difficult to obtain.

Table 27
Costa Rica: Relative Price of Capital Goods

Relative Price with respect to the Gross Domestic Product:	1975	1976	1977	1978	1979	1980
1. Gross Fixed Capital	100	91	84	85	88	89
1.1 Private	100	89	83	83	87	87
1.2 Public	100	94	85	89	90	92
2. Non-Tradable Capital	100	93	85	88	96	95
2.1 Private	100	92	84	85	96	96
2.2 Public	100	93	86	90	96	99
3. Tradable Capital	100	89	83	84	83	82
3.1 Private	100	89	83	84	83	82
3.2 Public	100	89	84	84	73	86

[a/] Tradables are machinery and equipment.
[b/] Non-tradables are buildings and other construction.

[60] Bevan et al., Op. cit., p. 102.

[61] Caution should be exercised, since there is no perfect coincidence between tradables and non-tradables and the aggregates used to proxy these categories of goods.

Despite the substantial increase in investment observed during the boom period, the relative price of capital goods (investment deflator) with respect to the GDP actually declined, as shown in Table 27. In effect, this relative price dropped to 84 percent in 1977 and then slowly climbed up to 89 percent by 1980. The reduction took place both with respect to tradable capital, for which the index steadily dropped, to 82 percent in 1980, and for non-tradable capital, for which the index dropped less, only to 95 percent by 1980.[62] In fact, the relative price of non-tradable capital first declined to 85 percent in 1977 and then increased to 96 percent in 1979, at the time of the major investment boom. Thus, the relative price of non-tradable with respect to tradable capital increased to 115 percent of its 1975 level by 1980, despite the general reduction of the relative price of capital, as shown in Figure 16. This reflects both the endogenous trade liberalization, the gradual over-valuation of the domestic currency, and the impact of the construction booms as predicted.

Because of the close association between non-tradable capital and public sector investment, the relative price of public sector capital formation declined to only 92 percent, while the relative price of private sector capital formation declined to 87 percent. Thus, the relative price of public capital with respect to private capital increased to 106 percent, as shown in Figure 17.

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[62] Tradable capital is proxied by machinery and equipment and non-tradable capital by buildings and construction of structures.

Figure 16
Costa Rica: Relative Price of Tradable and Non-Tradable Capital Goods, with respect to the GDP. 1975-1980. (1975:100).

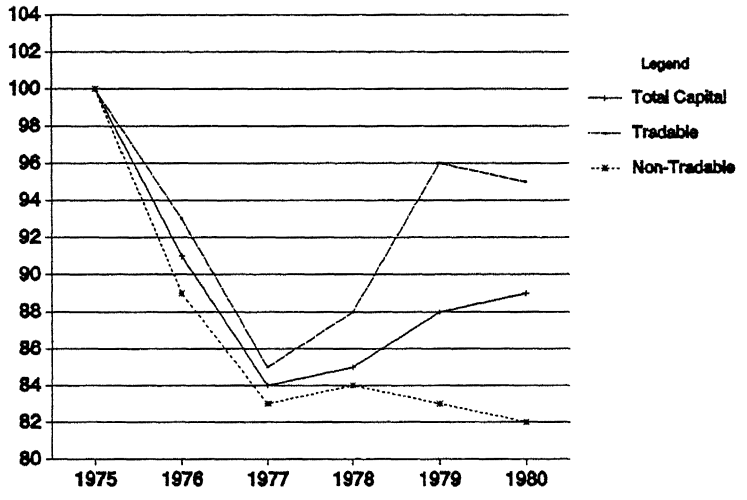
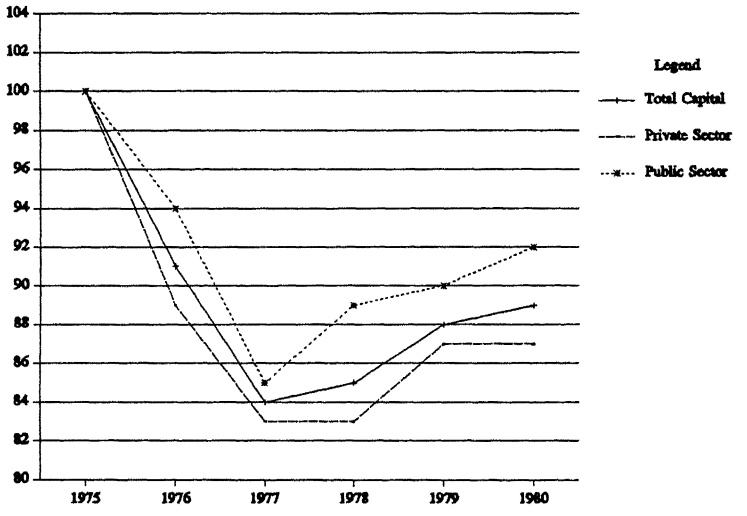


Figure 17
Costa Rica: Relative Prices of Private and Public Capital, with respect to the GDP. 1975-1980 (1975:100).



There is no sufficient evidence of an increase in the relative price of non-tradable capital with respect to non-tradable consumer goods. The relative price of value added in construction, relative to personal services, declined slightly, to 96.1 percent by 1980. Indeed, both the prices of services and of construction increased rapidly during the boom. The prices of services may, in part, have increased too rapidly as a consequence of the acceleration of government services prices, in reflection of the large government consumption windfalls, in very competitive labor markets. Similarly, the relative price of value added in construction, relative to commercial activities, declined to 98.9 percent by 1980. Finally, the relative price of non-tradable capital goods with respect to services declined to 87.4 percent in 1978 and partially recuperated to 91.7 percent by 1980. None of these relative prices provides evidence about the expected relative price changes. Capital goods, in general, became cheaper after the boom. Since the price of tradable capital goods declined faster, the relative price of non-tradable to tradable capital goods increased, but this pattern was not observed with respect to consumption goods. After initially declining, the price of capital with respect to manufactured goods increased to 101.4 percent in 1979 and 1980. This was the only instance of increasing relative capital goods prices.

V. Distribution of the Coffee Windfall

The sharp increase in international coffee prices of the second-half of the 1970s substantially augmented the incomes of all of the participants in the Costa Rican coffee sector. This section explores the distribution of the resulting windfall among these participants, which include 26 exporting houses, a few domestic toasters (*torrefactores*) who account for

4 percent of the value added in the sector, over 100 *beneficios* (hullers and processors for export), growers, wage laborers, input suppliers, and the public sector.

There is very little concentration of coffee production in the country. At the time of the 1973 Agricultural Census, 32,353 coffee farms had been identified, representing 39 percent of the total number of farms in the country. They grew coffee in 83,407 hectares of land, equivalent to 17 percent of the country's cultivated area. The average size of a coffee farm was 2.58 hectares. About three-quarters of the number of farms had less than 50 hectares. These are small but very valuable family exploitations, frequently located near urban centers. At the time of the 1984 Agricultural Census, there were 34,464 coffee farms, producing in 97,000 hectares of land.[63]

Exporting houses are highly specialized. Ten of the existing 26 have dominated the exporting activity. There were 106 *beneficios*, 29 of which were cooperatives. About one-half of them both grew and processed coffee, but 87 percent of the crop was purchased from individual producers. There is substantial competition among *beneficios* for the crop of independent producers. Labor comes both from the household and from wage earners, 40 percent of whom are permanent, and the rest hired as pickers during the harvest. About 170,000 workers participated in producing the crop in the late 1970s; of these, one-quarter worked in the plantations, two-thirds worked as pickers, and the rest in the *beneficios*. They represented one-fifth of the Costa Rican labor force, and have enjoyed steadily increasing real wages.

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[63] The average size of a coffee farm was 2.81 hectares in 1984.

There is strong government control of the coffee sector and the relationships among these different participants are strictly regulated. *Beneficios* should sell the coffee of a given year (picked from June to April) by September of the following year and turn the corresponding documents to the Coffee Institute (ICAFE), for the estimation of the final price to be paid to the growers. Partial payments during the year are not required, but the *beneficios* make *advances* for competitive reasons. Exporter's costs and regulated profits are deducted from actual FOB prices, and adjustments are made for coffee devoted to domestic consumption. The *beneficios* are allowed deductions of taxes, milling charges (variable but not fixed costs), and profits of 9 percent of the total sales revenues. The rest must be paid, by law, to producers. The *beneficio* operates as a trustee and is subject to clear accountability to the grower. Despite these government regulations, the system is very competitive at all levels.[64]

In his analysis of income distribution in the coffee sector, Bornemisza estimated the shares of these participants in the total export revenues.[65] Given the insignificant value added by coffee roasters and export companies, these two groups are not considered for these purposes. Table 28 shows the shares of the various groups for the boom period 1975-1980.

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[64] Rigoberto Stewart, "A Study of Costa Rica's Coffee Marketing System," unpublished report, 1989.

[65] Paul Bornemisza, Evolucion de la Distribucion del Ingreso en el Sistema Cafetero Costarricense desde 1974 hasta 1984, San Jose: University of Costa Rica, thesis, 1986.

Table 28
Costa Rica: Distribution of Total Revenues in the Coffee Sector, 1975-1980

	1975	1976	1977	1978	1979	1980
Labor	31.7	19.6	31.9	37.7	27.3	15.4
Coffee Growers	19.7	45.0	25.7	14.7	31.0	36.7
Input Suppliers	25.8	14.0	23.8	24.8	21.7	18.5
Public Sector	22.4	16.9	17.0	20.0	16.4	19.8
Beneficios	0.4	4.5	1.6	2.8	3.6	9.6

Source: Bornemisza, Paul, Op. Cit.

The coffee export windfall (computed in Table 4) was assigned to the various participants in the sector, under the assumption that the distribution observed in 1975 represents a reasonable counterfactual. All participants obtained substantial windfall incomes from the boom, as shown in Table 29. Among them, laborers and growers obtained the largest shares of the windfall. Indeed, the gains that accrued to labor, for US$ 218 million, represented 25 percent of the five-year windfall. Almost three-quarters of these labor windfall was received in 1977 and 1978. Growers, on the other hand, received a windfall of US$ 290 million, or 34 percent of the extra revenue. In the first year of high prices (1976) coffee growers were the most favored group, extracting 73 percent of the additional revenues. Afterwards, however, the government, via taxes, labor, via wage increases, and input suppliers, through a derived demand, augmented their participation in the windfall.

Table 29
Costa Rica: Distribution of the Coffee Export Revenue and of the Coffee Windfall, 1975-1980

	1975	1976	1977	1978	1979	1980
Observed:[a/]						
Labor	30	30	102	118	86	38
Coffee growers	19	69	82	46	98	91
Providers of inputs	25	22	76	78	68	46
Government	21	26	54	63	52	49
Beneficios	0	7	5	9	11	24
	95	154	319	314	315	248
Counterfactual:[a/]						
Labor	30	26	27	35	39	29
Coffee growers	19	16	17	21	24	18
Providers of inputs	25	21	22	28	32	23
Government	21	18	19	24	28	20
Beneficios	0	0	0	1	0	0
	95	81	85	109	123	90
Windfall:[a/]						
Labor	0	4	75	83	47	9
Coffee growers	0	53	65	25	74	73
Providers of inputs	0	1	54	50	36	23
Government	0	8	35	39	24	29
Beneficios	0	7	5	8	11	24
	0	73	234	205	192	158

[a/] Millions of US dollars.

The share of input suppliers amounted to US$ 164 million (almost one-fifth of the windfall). This represents gross income, however, since their costs are not known. Their participation was high in 1977 and 1978, when the high coffee prices induced an increased supply of the crop and increased induced demand for inputs. Input prices also augmented. The share of the public sector, amounting to US$ 135 million, represented 16 percent of the

total windfall, and was therefore comparatively small. This share included, in addition to taxes, payments for the use of public utilities and other government services. *Beneficios*, finally, received only 6 percent of the windfall (US$ 55 million), given strict regulations about their profit margins. Over the five-year period, on the average, the coffee windfall amounted to about US$ 1,300 per worker, US$ 9,000 per grower, and US$ 500,000 per *beneficio*.[66]

VI. Trade Shocks, Policy Responses, and Fiscal Crisis

Among Latin American countries, Costa Rica has been unique in terms of its political stability and the strength of its democratic institutions. Sustained political stability has promoted economic growth: it has favored investment, attracted foreign savings, and reduced the risks and transactions costs of economic activity, by promoting an institutional infrastructure that has efficiently defined property rights and facilitated the enforcement of contracts. The absence of an army released resources for education, health, and physical infrastructure. An emphasis on equity reinforced human capital formation. As a result, for a long time Costa Rica enjoyed rapid economic growth, while its major indicators reflected a higher quality of life than would be predicted for its per capita income level. Income inequality has been moderate and, in reflection of all of this, through the mid-1970s, Costa Rica was an example of growth-cum-equity.[67]

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[66] The author is grateful to Juan Muñoz for computations of these windfalls.

[67] All of this has been documented by Claudio Gonzalez-Vega and Victor Hugo Cespedes, The Political Economy of Growth, Equity, and Poverty Alleviation. Costa Rica:1950-1985, monograph prepared for the World Bank Project on The Political

Indeed, between 1961 and 1979, an average rate of growth of the GDP of 6.5 percent per year allowed a 3.4 percent increase in per capita GDP. These rates of growth molded the expectations of Costa Ricans in the mid-1970s. Furthermore, growth took place despite the country's vulnerability to external shocks; income instability and growth had been compatible. Cautious macroeconomic management had made it possible, on the other hand, to successfully isolate the macroeconomy from external fluctuations. From 1950 to just before the first oil shock, the country's average rate of inflation had been less than 2 percent per year.[68] A fixed exchange rate system had been successfully sustained by an independent Central Bank and substantial financial deepening had taken place.

By the mid-1970s, not all trends were positive. Promotion of manufacturing in the context of the Central American Common Market had initially accelerated growth, in the 1960s, as a result of increased regional trade. By the mid-1970s, however, the easy stages of import substitution had already been exhausted, new exports had been discouraged, distortions had slowed down the growth of productivity, and increasingly powerful interest groups were devoting scarce resources to directly unproductive activities. Education and social mobility had fueled rising expectations and growing demands for public-sector services. Combined with a strong concern for equity, these demands had led to the institutionalization of numerous growth-reducing fiscal entitlements and transfer payments. De-

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Economy of Poverty, Equity, and Growth, 1989.

[68] Between 1950 and 1970, the average rates of change were 1.0 percent for the wholesale price index, 1.8 percent for the GDP deflator, and 2.0 percent for the consumer price index.

spite these signs of danger, both foreigners and nationales were heavilly betting on the continued success of the Costa Rican economy.

In sharp contrast, during the 1980s Costa Rica experienced major economic difficulties. An economy that for over two decades had enjoyed rapid growth faced declining output and trade flows. The rate of growth of the GDP dropped from 8.9 percent in 1977 to -7.3 percent in 1982. The decline of growth rates was shared by all sectors of economic activity and by all components of aggregate supply and demand. By 1982, fixed investment amounted to 49 percent, while imports represented 58 percent of their 1979 levels. Both exports and imports declined and the country's trade deficit, which had grown from US$ 92 million in 1972, to US$ 522 million in 1980, had to be curtailed to US$ 23 million by 1982.

Before the 1980s, Costa Rica had been successful in generating rapidly growing employment opportunities and in using its labor markets to distribute the fruits of growth. Costa Rica had been the country in Latin America with the highest rate of growth of employment in modern, non-agricultural activities.[69] Factor-price policies had discouraged employment in the private sector, however, and the public sector had increasingly become the employer of last resort. Public-sector employment increased from 6 percent of the labor force in the early 1950s, to 20 percent in the early 1980s. The large size of some ministries (e.g., Education) and of several autonomous institutions had facilitated the creation of strong middle-class labor unions. While almost one-half of the public-sector workers were unionized by the late 1970s, the proportion was 10 percent for the total labor force. These unions

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[69] Norberto Garcia and Victor E. Tockman, Acumulacion, Empleo y Crisis, Santiago: PREALC, 1985.

had negotiated public-sector wages well above those for equivalent occupations in the private sector.

With the crisis of the early 1980s, open unemployment rates at least doubled, from 4.5 percent of the labor force in 1979, to 9.5 percent in 1982, while underemployment increased substantially. From one-digit rates in the late 1970s, inflation accelerated in the 1980s. In 1981, the wholesale price index increased 65 percent and it rose another 108 percent in 1982. Once fiscal control was regained, the rate of inflation declined to 8 percent in 1984. A sharp contraction of the real size of the financial system had resulted from the attempts to finance huge fiscal deficits with domestic bank credit. As a consequence of a declining level of output in the face of high inflation rates, by 1982 average real wages had dropped to 46 percent of their 1979 level. They still were at about two-thirds of that level by the end of 1984. Inflationary pressures had also resulted in the rapid devaluation of the domestic currency, from 8.57 colones per US dollar in late 1979 to over 65 colones per US dollar in mid-1982. After stabilization in 1984, it was impossible to go back to the fixed exchange rate system, in view of the continued large size of the public sector. Growth was jeopardized, in addition, by attempts to pay the accumulated public external debt, equivalent to over one-and-a-half times the GDP, and which the country could not service as originally contracted.

Given the exceptional record of steady growth and price stability of the pre-boom period, the difficulties of the early 1980s may seem surprising. Major external shocks and unfortunate domestic policies adopted in response to the shocks separate, however, the two periods. The shocks were characterized for their multiplicity and complex interactions,

including two negative oil shocks, with a highly positive coffee boom in between, an unusual expansion of the country's access to international financial markets, followed by the movement of real interest rates from negative to highly positive and by a suddent restriction of the terms and conditions for further access to those markets, as well as war and insurrection in Central America, which contributed to the breakdown of the CACM.

The crisis cannot be explained solely by these external shocks, however. The difficulties were rather the result of a combination of unfavorable long-term trends with these short-term circumstances.[70] The structural determinants of the crisis reflected a contradiction between the country's basic characteristics (a small domestic market, relative labor abundance, and very specialized natural resources) and features of the protectionist strategy of industrialization adopted in the late 1950s.[71] High costs and distortions had resulted from the penalization of agriculture and the anti-export bias of the adopted trade policies. By the mid-1970s, these deficiencies of the strategy of development already required major policy reforms. In addition, political stability and democratic participation had contributed to the consolidation of a multitude of interest groups, to overconsumption, and to an increasingly rigid deadlock of power shares. The accumulation of entitlements had added to the existing distortions, enlarged the public sector, and promoted bureaucratic controls and

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[70] Victor Hugo Cespedes, Claudio Gonzalez-Vega, and Ronulfo Jimenez, Costa Rica frente a la Crisis. Politicas y Resultados, San Jose: Academia de Centroamerica, 1990.

[71] Claudio Gonzalez-Vega, "Fear of Adjusting: The Social Costs of Economic Policies in Costa Rica in the 1970s," in Donald E.Schulz and Douglas H.Graham, eds. Revolution and Counterrevolution in Central America and the Caribbean, Boulder: Westview Press, 1984.

regulations. The decentralized agencies and state-owned firms had become pressure groups in their own right and claimed substantial shares of the available resources.

The second-half of the 1970s were characterized by two highly positive external events. The negative impact of the first oil shock was soon dissipated at the onset of the coffee boom, with its overwhelming windfalls. Increased real incomes were further supplemented by an unusual access to foreign savings, in a country used to attracting substantial flows of external capital. Commercial policy reforms were postponed and, instead of a reduction, the period was characterized by the accelerated expansion of the explicitly budgeted public sector and of the entitlements to implicit public sector transfers. When the negative shocks returned, by the turn of the decade, the Costa Rican economy was ill-prepared for the adjustments required. Substantial instability and a major impoverishment followed.

Earlier sections of this paper have highlighted the contrasting behavior of the private and the public sectors during the coffee boom. While the private sector correctly interpreted the trade shock as temporary and proceeded to save most of the windfall income, the public sector treated the impact of the shock as a new, permanently higher level of income and celebrated this with a spending euphoria. The government, already an interventionist, welfare state, became a major entrepreneur via the activities of CODESA and gave little attention to the modification of tax structures or the mobilization of domestic savings through the financial system.

Under the Oduber administration (1974-1978), CODESA, the public investment corporation, became an instrument for the state's intervention in productive activities in direct competition with the private sector. CODESA's non-restricted access to Central Bank credit

became a major component of the deterioration of the public-sector finances. While in the early 1980s CODESA's enterprises used 18 percent of domestic credit, they contributed only 1.8 percent of the Gross Domestic Product and 0.3 percent of total employment. Between 1976 and 1983 none of CODESA's subsidiaries ever made a profit, while the accumulated losses (2.059 million colones) represented 35 percent of all of their assets.[72] Because CODESA was not restricted by the political controls typical of government agencies or by the profit discipline of private firms, the agency became a factory of quasi-rents. The larger the project, irrespective of profitability, the greater its political visibility and the larger the rents created. The coffee boom facilitated (and financed) these activities. Similarly, the Oduber administration continued the initiatives of the earlier Figueres administration in creating new redistributive, welfare agencies, such as the family allowances program (Asignaciones Familiares), which promissed streams of future income transfers which were not sustainable beyond the coffee boom period.

While the end of the coffee boom windfall, the deterioration of the country's international terms of trade with the second oil shock, and the world recession required a major adjustment of the Costa Rican economy towards the end of the decade, the new Carazo administration (1978-1982) found it difficult to bring the rate of growth of aggregate expenditures downwards to a level consistent with the new circumstances. Import capacity was curtailed by the reduction in export earnings and in private capital inflows due to political instability in Central America, but the required austerity encountered much political

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[72] Thelmo Vargas, "Viabilidad del Estado Empresario. El Caso de CODESA," San Jose: umpublished for USAID, 1987.

opposition. The powerful manufacturing sector had become extremely dependent on imported inputs as a consequence of the prevailing structure of effective protection and was prepared to defend its entitlements. The strong public sector unions, on the other hand, were ready to block any attempts at fiscal control. Numerous organized groups struggled to maintain their standard of living, aided by the new government's expansionary credit policies.

Based on a weak coalition, the Carazo administration did not oppose the efforts of the more powerful interest groups to avoid the direct impact of the adjustment. Rather, the authorities chose to postpone the adjustment by heavily borrowing abroad. Costa Rica's public external debt increased to US$ 3,419 by 1984, to become one of the highest external debts in the world, in per capita terms. The stock of accumulated fiscal deficits financed abroad eventually reached, however, the limit that foreign lenders were willing to accept. When capital inflows began to dry up, the authorities expanded domestic credit even more rapidly, in order to sustain the level of spending of the public sector at the levels it had become used to during the coffee boom. The resulting inflationary pressures led to the loss of the accumulated stock of international monetary reserves and to additional borrowing abroad in order to replenish reserves. Once these reserves were exhausted and access to foreign funds ceased, domestic inflation accelerated. When the revenues from the inflation tax declined, as a result of currency substitution and other mechanisms of evasion, the private sector was crowded out from domestic credit portfolios. The proportion of domestic credit for the private sector declined from 81 percent in 1975 to 55 percent in 1982. This crowding out accentuated the decline in output.

As a result of the inability to undertake appropriate measures to reduce the fiscal deficit and of the fear to the political costs of an outright devaluation, exchange rate management became chaotic. Experimentation with all kinds of exchange rate practices, taxes and subsidies, import and exchange controls, prior deposits, and other policy instruments reflected the weakness of the authorities and the strength of the interest groups. Major distortions in resource allocation and inequities in wealth distribution resulted. A large bureaucracy had to be hired at the Central Bank in order to administer the system, while numerous legal battles were the consequence of the complexity of contradictory regulations.

The increased level of government expenditures and income transfers that resulted from the coffee boom was not sustainable over the long run. While there is a possibility that the authorities simply misjudged the size of the future foreign exchange flows and committed themselves to unsustainable consumption support programs, the bulk of the overexpansion may be attributed to political economy pressures. Political stability and democratic participation had promoted the creation of entitlements to current and future income streams for a multitude of interest groups (industrialists, public sector workers, social security beneficiaries, small farmer borrowers, rice growers, and cattle ranchers). Given the legal formality of the Costa Rican system, such entitlements had been institutionalized as specific property rights. This institutionalization, in the form of revenue earmarking and legal spending requirements, had in turn reduced the discretionary powers of the authorities and had limited their flexibility to adjust to changes in the economic environment. In order to meet growing demands for services and transfers, new sources of revenues had to be

sought to support an ever increasing public sector. In addition, the predominant position of the nationalized banks in the financial system made it possible to easily direct domestic credit to the financing of public-sector activities and income transfers.

With the coffee boom, a particularly large set of new programs and transfers had been created, but retrenchment looked politically costly when the boom was over. Social peace was perceived as being highly dependent on the preservation of entitlements to public sector services and income transfers. This not only made policy reforms difficult, but it also guaranteed that the impact of the crisis would be suffered the most by the politically least powerful segments of society.

The experience of Costa Rica during the coffee-cum-debt boom highlights the need for cautious macroeconomic management during a positive temporary trade shock, although the incentives for such parsimony may not be there at such times, and it suggests that, given the interactions between the political economy pressures, the behavior of the authorities, and the availability of export windfalls or large flows of borrowed foreign funds, ample access to additional external resources may not always be welfare improving.

During the early stages of the crisis, the reduction in the economy's real income necessitated the adoption of expenditure-reducing policies and measures to curtail the size of the fiscal deficit, but the authorities chose to transform the fiscal deficit into a foreign debt issue, by persuading foreign lenders to extend more credit, even in the absence of a consistent stabilization-cum-liberalization program. Foreign borrowing then became the cornerstone of macroeconomic policy management. This approach was unfortunate. The de-

cision to increase the foreign debt seriously compromised future growth for the sake of sustaining an artificial level of consumption for a few additional years.

Access to foreign financing strengthened the reluctance to devalue, even when the colon had become grossly overvalued. This resulted in substantial implicit and explicit subsidies for those with access to the underpriced foreign exchange. The beneficiaries were not only those classes with a high import content in their consumption patterns, but particularly those who were able to transform a large portion of their portfolios of wealth into foreign assets. That is, public foreign borrowing and a fixed exchange rate that overvalued the domestic currency resulted in a subsidy to private capital flight for those with sufficient liquid resources to be able to speculate against the colon and for those for whom the transactions costs of foreign asset purchases were sufficiently low. The returns from externally borrowed resources were thereby privatized, while service of the foreign debt was socialized. Thus, while the beneficiaries of the postponement were those capable of investing abroad, the losers have been the marginal groups now deprived of public sector services in areas such as health and education. The shares in the burden of the adjustment responded, therefore, to the political and economic strength of the distribution coalitions of interest groups.